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TREATMENT OF MIXED INFECTIONS WITH PENICILLIN

I. With Special Reference to the Adjuvant Action of Parachlorophenol

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In the course of our study of established infections during the past year and a half, it has been demonstrated frequently that penicillin is of questionable benefit or no benefit at all in the treatment of many infections in which there is a mixture of organisms. In some of these infections there is undoubtedly a synergistic action on the part of the bacteria in the production of the pathologic process. In other cases, secondary contaminants which are not pathogenic or are only feebly so, under ordinary circumstances, are able to multiply in the presence of wound exudate or dead tissue.

Using the wound as a culture medium, these organisms produce metabolic products which may be toxic locally to the tissues of the wound or may be absorbed by the body and give rise to general symptoms. Certain of these metabolic products may also destroy the growth-inhibiting action of penicillin. Abraham and Chain [1] believe this destructive agent to be an enzyme and named it "penicillinase." Its enzymatic nature is further substantiated by the work of Woodruff and Foster.[2] Among the different bacteria which produce this enzyme is the large group of aerobic non-spore forming gram-negative rods, particularly the coliform, the proteus and the pyocyaneus bacilli.

Some strains destroy relatively large amounts of penicillin rapidly, others inactivate it much more slowly or not at all. When the inactivation is slow, this may be offset by increasing the number of units of penicillin in a given dose. The level of penicillin in the wound may thus be kept sufficiently high to eliminate susceptible species, such as hemolytic streptococci or Staphylococcus aureus. If such a level cannot be maintained, the penicillin will not have the expected beneficial effects. A consistent reduction of the level below that required for the bacteriostasis of "susceptible" strains carries with it an additional hazard, since, under these circumstances, the previously "susceptible" strain may acquire resistance and become penicillin fast. It has become increasingly important, therefore to find an antibacterial agent which will eliminate these gram-negative organisms when they are present in mixed infections or in contaminated accidental wounds of soft parts, compound fractures and burns.

As soon as it became apparent in the early part of the study that mixed infections did not respond favorably to penicillin, we planned a series of laboratory experiments. All gram-negative organisms isolated from wound infections were tested for their destructive action on penicillin "in vitro" and for their susceptibility to a series of antibacterial agents known to be effective against gram-negative organisms. We also tested the compatibility of penicillin and these agents in isotonic solution of sodium chloride and in a carbowax 4,000-propylene glycol base. It was our plan to select the agent most effective against the gram-negative bacteria in each individual case and to use this agent in combination with penicillin in the treatment of the infection.

DESTRUCTION OF PENICILLIN IN VITRO BY GRAM-NEGATIVE ORGANISMS

We have tested 134 strains of gram-negative bacteria isolated from wound infections for their destructive action on penicillin. In the majority of these tests we assayed the extracellular penicillinase only. To 1 cc. of an overnight broth culture of the test strain was added 1 cc. of a penicillin solution containing 40 units per cubic centimeter. A control was set up using 1 cc. of beef infusion broth plus 1 cc. of the penicillin solution. These mixtures were incubated for two hours at 37 C. and then tested for penicillin content by the agar plate-penicylinder method against the Oxford strain of staphylococcus.

We repeated the tests with fresh cultures of all strains showing complete or no destruction of the penicillin in the two hour period and the results were essentially the same. In repeat tests with strains which showed partial inactivation there was at times as much as 25 per cent variation in the results, but in no case did we get no inactivation in the retests of these slow inactivators. In certain experiments we used penicillin in human plasma and whole blood to add to the broth cultures of the organisms. Neither the plasma nor the whole blood protected the penicillin from the action of the bacterial penicillinase. Of particular interest to us was the rapid inactivation of the penicillin by the groups of Achromobacters and gram-negative micrococci, organisms which would usually be considered relatively unimportant members of the bacterial flora of the infection. In one infection there was clinical evidence that the gram-negative coccus was inactivating the penicillin in vivo

The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and the Columbia University College of Physicians and Surgeons.

1. Abraham, E. P., and Chain, E.: Enzyme from Bacteria Able to Destroy Penicillin, Nature, London **146**: 837, 1940.
2. Woodruff, H., and Foster, J. W.: Microbiological Aspects of Penicillin: VII. Bacterial Penicillinase, J. Bact. **49**: 7-17, 1945.

since, until it was eliminated from the wound by p-chlorophenol, the infection did not respond to penicillin therapy.

We do not wish to create the impression that the gram-negative organisms are the only bacteria in wounds which may destroy penicillin. The great majority of the aerobic gram-positive spore-forming bacilli (B. subtilis group) isolated from mixed infections completely destroyed the growth inhibiting action of 250 to 500 units of penicillin per cubic centimeter rapidly, and the naturally resistant strains of staphylococci also inactivated penicillin.

TABLE 1.—*Destructive Action of Gram-Negative Bacteria on Penicillin*

Organism	Number of Strains Tested	Number with Complete Destruction	Number with No Destruction	Number with Partial Destruction	Average Percentage of Destruction
E. coli	44	3	10	31	54
Coli intermediates	9	1	2	6	73
Aerobacter	6	1	0	5	50
Proteus	27	2	21	4	50
Pyocyaneus	33	2	4	27	57
Achromobacter	5	3	0	2	65
E. typhosus	2	0	2	..	..
K. friedländeri	1	0	1	..	..
B. alkaligenes	2	0	0	2	60
S. alcalescens	2	0	0	2	40
Micrococcus	3	2	1	..	..

ANTIBACTERIAL AGENTS EFFECTIVE AGAINST GRAM-NEGATIVE ORGANISMS

During the past two years we have tested over two hundred chemical compounds and antibiotic agents for their antiseptic action on aerobic gram-negative bacteria. Unfortunately the great majority of the agents which have a bacteriostatic action in vitro are not suitable for clinical use. An antiseptic should be active in the presence of organic matter and should be able to penetrate into pus or wound exudates and into surrounding infected tissues. It should be soluble or miscible in water in concentrations which will permit further dilution by body fluids and still retain bacteriostatic activity. It must inhibit the multiplication of the bacteria in dilutions which can be tolerated by the tissues, and it should not unduly retard wound healing. Many agents which are highly toxic if administered systemically may be used for local application to infected wounds, since the amount absorbed into and present in the body at any one time is not sufficient to produce a general toxicity.

Among the agents which seem to meet these conditions and therefore are worthy of extensive laboratory and clinical studies are p-chlorophenol, 9-amino-acridine hydrochloride, 5 nitro-2 furaldehyde semicarbazone, streptothricin and streptomycin.

THE HALOGENATED PHENOLS

Of the halogenated phenols which we have tested in vitro, p-chlorophenol seemed to give the most promise of success for clinical use. Klarmann and his associates [3] reported in 1934 that the bacteriostatic and bactericidal action of the halogenated phenols increased with the atomic weight of the halogen atom. The compounds with the halogen atom in the para position were found to be more active than those with the halogen atom in the ortho position on the phenol ring. We reevaluated p-chlorophenol, p-bromophenol and p-iodophenol but found that, under our experimental conditions, the differences in bacteriostatic activity against gram-negative organisms was too small to offset the increase in the toxicity which accompanied the increase in weight of the halogen atom. Klarmann and his associates [4] had also reported that the introduction of the aliphatic and aromatic groups into the halogenated phenols increased the bacteriostatic action and decreased the toxicity. N-amyl-p-chlorophenol was the most bacteriostatic and the least toxic. However, the low solubility of this compound in water more than offset the increase in germicidal activity when compared to p-chlorophenol in our tests. We also tested 4-chloro-o-phenyl phenol and 0-(2, 3, dichloropropyl) phenol but the margin between the concentration necessary for bacteriostasis and the maximum solubility of these compounds in water was too small to permit dilution by body fluids or wound exudates. We therefore focused our attention on p-chlorophenol.

PARACHLOROPHENOL

Physical Properties and Toxicity.—This compound [5] is readily soluble in water or in isotonic solution of sodium chloride in a concentration of 1:200. For clinical use a 1:400 concentration in isotonic solution of sodium chloride or in a carbowax 4,000-propylene glycol (45 to 55 per cent by weight) ointment base was used for local application to infected wounds. Its systemic toxicity when injected subcutaneously into mice is 0.6 mg. per gram of body weight. A corresponding dose for man would be 40 Gm., or about 16 Kg. of ointment as prepared for clinical use, which is well above any amount likely to be used. In solution and in the carbowax ointment it has a not unpleasant phenolic odor.

Bacteriostatic and Bactericidal Properties.—For our "in vitro" studies we made up the desired concentrations of p-chlorophenol in beef infusion broth, p_H 7.2, tubed in 5 cc. amounts. We used a heavy inoculum, 0.05 cc. of an overnight culture, to seed the experimental and control tubes. The results of our tests on 140 freshly isolated strains of Gram-negative bacteria are given in table 2.

TABLE 2.—*Bacteriostatic Action of P-Chlorophenol on Gram-Negative Bacteria*

Organism	Strains	Concentration Necessary for Complete Bacteriostasis in Beef Infusion Broth		
		1:1,000	1:2,000	1:5,000
E. coli	44	5	28	11
Coli intermediates	10	0	9	1
Aerobacter	6	0	5	1
B. pyocyaneus	36	5	19	12
Proteus	28	3	23	2
Achromobacter	5	1	0	4
B. alkaligenes	3	0	0	3
S. alcalescens	2	0	1	1
E. typhosus	2	0	1	1
K. friedländeri	1	0	0	1
Micrococcus	3	0	0	3

The concentrations given are those which completely inhibited the multiplication of the organisms after seventy-two hours' incubation at 37 C. The bactericidal level was very close to the bacteriostatic level. In no instance when the tubes were plated after twenty-four hours' incubation at 37 C. were there viable organ-

3. Klarmann, E.; Shternov, V. A., and Gates, L. W.: The Alkyl Derivatives of Halogen Phenols and Their Bactericidal Action: I. Chlorophenols, J. Am. Chem. Soc. **55**: 2575-2589, 1933. Klarmann, E.; Gates, L. W.; Shternov, V. A., and Cox, P. H.: The Alkyl Derivatives of Halogen Phenols and Their Bactericidal Action: II. Bromophenols, ibid. **55**: 4657-4662, 1933.

4. Klarmann, E.; Shternov, V. A., and Gates, L. W.: The Bactericidal and Fungicidal Action of Homologous Halogen Phenol Derivatives and Its "Quasi-Specific" Character: I. Derivatives of Parachlorophenol, J. Lab. & Clin. Med. **19**: 835-851, 1934.

5. Obtained from the Eastman Kodak Company, Rochester, N. Y.

isms in the 1:1,000 dilution of the p-chlorophenol in beef infusion broth.

Compatibility with Penicillin.—We have tested the compatibility of calcium and sodium penicillin with p-chlorophenol in isotonic solution of sodium chloride and in the water soluble carbowax 4,000-propylene glycol ointment. Mixtures of sodium or calcium penicillin 250 to 500 units per gram and p-chlorophenol 0.25 per cent showed no loss of penicillin titer when tested after two weeks' storage at 5 C. After six to twelve weeks' storage, there was a decrease in penicillin activity amounting to approximately 50 per cent. We also determined whether p-chlorophenol had a rapid destructive action on penicillin at body temperature. After forty-eight hours at 37 C., the titer of the penicillin combined with 0.25 per cent p-chlorophenol had not dropped. It would seem therefore that for all practical purposes penicillin and p-chlorophenol may be combined for application to infected wounds.

The ointment is prepared by melting 45 parts of carbowax 4,000 with 55 parts of propylene glycol together either over a free flame or in a hot water bath. When they are thoroughly mixed they are sterilized in a dry oven at 140 C. for four hours and then allowed to cool. As they begin to solidify at 40 C. the penicillin (1,000 units per gram) and parachlorophenol (0.25 per cent) are added. At this stage the ointment may be incorporated sterilely into fine meshed gauze (piece by piece cut to a convenient size) and placed in a pile of fifty or more in a container. A pint or quart sized ice cream box serves as an excellent container. Both the ointment and the impregnated gauze should be kept in the ice box until ready for use.

Clinical Results.—We have never seen any evidence of local or general toxic reaction from the local application of 0.25 per cent p-chlorophenol, although some patients have complained of a slight burning sensation for a short time after it was applied. Dr. Howes tested for us its effect on the healing of experimentally produced wounds of the rabbit's ear and there was no appreciable inhibition. Sinus tracts may be irrigated with a 0.25 per cent solution in isotonic solution of sodium chloride, but for local application to wound surfaces we prefer 0.25 per cent p-chlorophenol in carbowax 4,000-propylene glycol ointment. This may be applied directly or may be impregnated in fine mesh gauze.

The use of p-chlorophenol in wounds infected with gram-negative organisms has given very gratifying results. It eliminated Proteus vulgaris from an osteomyelitis wound when that organism was rapidly destroying recent skin grafts. It did this promptly after its application, although previous treatment with streptothricin had failed. A gram-negative micrococcus was eliminated from another compound fracture wound when the development of granulations had come to a standstill. After its application, granulations promptly started to grow and permitted skin grafting within a few days. It caused the disappearance of a typhoid bacillus after two days' application in a case of typhoid osteomyelitis. It eliminated B. pyocyaneus from a very extensive osteomyelitic cavity in the femur and also from a cecostomy wound in which the pyocyaneus was growing luxuriantly.

P-chlorophenol (0.25 per cent) was used in combination with penicillin (250 units per gram) in the carbowax-propylene glycol base in a very extensive ulcerating infection of the vagina, vulva, perineum and groins following a partial colectomy in a case of chronic ulcerative colitis. This infection cultured a group C hemolytic streptococcus, a coagulase positive hemolytic Staphylococcus aureus, a nonhemolytic streptococcus, Clostridium welchi and an anaerobic gas-forming gram-positive micrococcus, all sensitive to penicillin, Proteus vulgaris, resistant to penicillin and Escherichia coli and resistant to and destructive of penicillin. The p-chlorophenol stopped the destructive action of the E. coli on the penicillin and the ulcers healed rapidly. P-chlorophenol combined with penicillin also eliminated all the organisms from a chronic ulcer of the leg from which proteus, nonhemolytic streptococci and an anaerobic gas-forming gram-positive micrococcus had been cultured and the wound, which had become completely stagnant, was soon epithelized.

Recently we have had some difficulty ridding an operative wound of Pseudomonas pyocyanea in a case of chronic osteomyelitis of the tibia with epithelioma in the old osteomyelitic scar. The cultures yielded hemolytic Staphylococcus aureus and Ps. pyocyanea. The Ps. pyocyanea produced penicillinase. The tumor and scar and the diseased bone were removed and the wound dressed with a silk tampon packed with gauze soaked in an aqueous solution of penicillin 1,000 units per cubic centimeter and 0.25 per cent parachlorophenol. The Ps. pyocyanea was held in check and the wound granulated and accepted skin grafts throughout the area except at one small spot 6 by 3 mm. in diameter on the marble-like eburnated bone, where the bone remained bare and the cultures of Ps. pyocyanea have persisted. This may require further excision of the diseased bone.

In another recent case of chronic osteomyelitis of the femur with sinuses in the thigh, sequestrums around the lesser trochanter and a urinary fistula through the thigh sinuses from which cultures yielded hemolytic Staphylococcus aureus, Ps. pyocyanea (producing penicillinase), Proteus vulgaris and a nonhemolytic streptococcus, the sinus tracts were excised and the sequestrums were removed but the fistula was not closed. The wound was dressed with a silk tampon and puddled with an aqueous solution containing penicillin 1,000 units per cubic centimeter and parachlorophenol 0.25 per cent. Ps. pyocyanea persisted for several weeks but finally disappeared when streptothricin 250 units per cubic centimeter was added to the mixture. The Proteus vulgaris and urinary fistula still persist.

These are the only cases in which Ps. pyocyanea has failed to respond promptly to the local application of parachlorophenol, and we believe the physical nature of these wounds prevented adequate contact. Both may require further operative procedures.

SUMMARY AND CONCLUSIONS

1. The treatment of surgical infections with penicillin makes it of the utmost importance to have a complete picture of the bacterial flora of such infections and to know whether the organisms are susceptible, indifferent or antagonistic to penicillin. The destructive action of the aerobic gram-negative non-spore forming bacteria should be anticipated and attempts to eliminate them should be made before "susceptible" species have developed resistance to penicillin.

2. Of the antiseptics so far tested and which are available at present, p-chlorophenol is the most effective antibacterial agent against gram-negative organisms. In a concentration consistent with clinical safe application, it was bacteriostatic and bactericidal for all the

gram-negative organisms tested, whereas 9-aminoacridine hydrochloride and 5 nitro, 2 furaldehyde semicarbazone were not effective against Ps. pyocyanea.

3. The individual strain susceptibility of the gram-negative organisms isolated from any given infection should be tested for the inhibitory action of parachlorophenol, 9-aminoacridine, 5 nitro, 2 furaldehyde semicarbazone, streptothricin and streptomycin, since the sensitivity of different strains within the same species as well as the sensitivity of different species varies greatly.

4. All of these agents are compatible with penicillin and may be combined for local application to infected wounds.

5. They may be incorporated in a carbowax-propylene glycol base for local application and prolonged action in wounds.

The effect of agents other than parachlorophenol will be reported in subsequent papers.

CHEMOPROPHYLAXIS AND SULFONAMIDE RESISTANT STREPTOCOCCI

LIEUTENANT COMMANDER DOUGLAS S. DAMROSCH (MC), U.S.N.R.

The use of sulfonamide drugs for the prevention of streptococcic infections and rheumatic fever has been employed by several groups of workers,[1] with generally favorable results. In 1943 Watson and his associates [2] used sulfadiazine to interrupt the course of a scarlet fever epidemic in a small naval activity in New York.

In 1943, faced with disturbingly high morbidity rates from streptococcic infections in several naval recruit training centers, a program of chemoprophylaxis was instituted on a scale much larger than that previously employed. The experience during the first six months of that program was highly gratifying.[3] In general there was a reduction in the incidence of streptococcic infections to approximately 15 per cent of the expected rate, as shown in control groups which did not receive the drug.

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From Epidemiology Unit No. 89, with the assistance of Lieut. D. W. MacDonald (HC), U.S.N., Lieut. Colin Livesey, H(S), U.S.N.R., Lieut. G. C. Morris, H(S), U.S.N.R., and Pharmacist's Mates P. R. Carter, C. C. Ball, R. M. Lundblad, W. F. Alston, A. R. Shields, H. R. Schorr and A. Goldman.

Comdr. Alvin F. Coburn (MC), U.S.N.R., gave advice during this study.

1. Thomas, C. B., and France, R.: Preliminary Report of Prophylactic Use of Sulfanilamide in Patients Susceptible to Rheumatic Fever, Bull. Johns Hopkins Hosp. **64**: 67-77 (Jan.) 1939. Coburn, A. F., and Moore, L. V.: Prophylactic Use of Sulfanilamide in Streptococcal Respiratory Infections, with Special Reference to Rheumatic Fever, J. Clin. Investigation **18**: 147-155 (Jan.) 1939; Prophylactic Use of Sulfanilamide in Rheumatic Fever Subjects, M. Clin. North America **24**: 633 (May) 1940. Thomas, C. B.; France, R., and Reichsman, F.: The Prophylactic Use of Sulfanilamide in Patients Susceptible to Rheumatic Fever, J. A. M. A. **116**: 551-560 (Feb. 15) 1941. Coburn, A. F., and Moore, L. V.: A Follow-Up Report on Rheumatic Subjects Treated with Sulfanilamide, ibid. **117**: 176 (July 19) 1941. Hansen, A. E.; Platou, R. V., and Dwan, P. F.: Prolonged Use of a Sulfonamide Compound in Prevention of Rheumatic Recrudescences in Children: Evaluation Based on Four Year Study of 64 Children, Am. J. Dis. Child. **64**: 963-976 (Dec.) 1942. Kuttner, A. G., and Reyersbach, G.: The Prevention of Streptococcal Upper Respiratory Infections and Rheumatic Recurrences in Rheumatic Children by the Prophylactic Use of Sulfanilamide, J. Clin. Investigation **22**: 77-85 (Jan.) 1943. Chandler, C. A., and Taussig, H. B.: Sulfanilamide as a Prophylactic Agent in Rheumatic Fever, Bull. Johns Hopkins Hosp. **72**: 42-53 (Jan.) 1943.

2. Watson, R. F.; Schwentker, F. F.; Fetherston, J. E., and Rothbard, S.: Sulfadiazine Prophylaxis in an Epidemic of Scarlet Fever, J. A. M. A. **122**: 730-733 (July 10) 1943.

3. Coburn, A. F.: The Prevention of Respiratory Tract Bacterial Infections by Sulfadiazine Prophylaxis in the United States Navy, J. A. M. A. **126**: 88-92 (Sept. 9) 1944; The Prevention of Respiratory Tract Bacterial Infections by Sulfadiazine Prophylaxis in the United States Navy, Bureau of Medicine and Surgery, Navy Department, Navmed 284, 1944.

However, during the following season, the fall and winter of 1944-1945, chemoprophylaxis failed in a number of instances. The development of a satisfactory in vitro test for sulfonamide resistance of group A beta hemolytic streptococci [4] made it possible to attribute this failure to the prevalence of strains which were highly resistant to the drug which was being used prophylactically.

My purpose in this paper is to present the events which occurred following the appearance of sulfonamide resistant group A streptococci in three small training schools in which chemoprophylaxis was used.

DESCRIPTION OF THE SCHOOLS

The three school buildings, which may be called School Red, School White and School Blue, before occupation by the Navy, had been parts of the school system of a large Midwestern city. Red and Blue were junior colleges, and White was a high school. Architecturally they were quite similar, all being three-storied brick or stone buildings. They contained classrooms for 40 or 48 students each, an auditorium, a gymnasium, offices and a cafeteria. School Blue had a single gymnasium but no swimming pool. Schools Red and White each had two gymnasiums and a swimming pool. As all three were day schools, there was no provision for berthing.

The school buildings were taken over by the Navy in 1943 and 1944 for use as training schools in one of the naval specialties. School Red was occupied by the Navy in the fall of 1943, White early in 1944 and Blue in the summer of 1944. Conversion to meet naval needs involved minimal structural changes. The gymnasiums and some of the classrooms were used as berthing facilities. The remaining classrooms retained their original function. Additional toilet facilities were installed. In each a medical department, staffed by a medical officer and hospital corpsmen, was installed and consisted of a dispensary and one or two wards. The latter were used for the care of minor illnesses and injuries, the more serious or prolonged cases being transferred to a nearby naval hospital.

The pressing demands of the naval training program made necessary a certain amount of compromise with accepted hygienic standards in many instances. This was true at the schools being discussed, and in each the exigencies of the service and space available for berthing led to crowded sleeping arrangements. Triple decked bunks were employed throughout. At School Red 400 men were housed in each of the two gymnasiums, containing in each instance 6,000 square feet of floor area and 168,000 cubic feet of volume. The smaller bunk rooms housed from 51 to 69 men and contained 720 to 960 square feet of floor area and 10,080 to 13,440 cubic feet of volume respectively. At School White the two gymnasiums berthed 420 men each and the measurements of both were 5,975 square feet and 155,350 cubic feet. The smaller bunk rooms berthed 30 to 75 men, and their measurements ranged from 735 to 1,795 square feet and 9,552 to 23,335 cubic feet respectively. At School Blue 240 men slept in the gymnasium (4,500 square feet and 90,000 cubic feet) and from 36 to 60 in the smaller bunk rooms (750 to 1,500 square feet and 11,250 to 22,500 cubic feet).

Spacing of bunks varied somewhat, but in few instances was the space between bunks in excess of

4. Wilson, A. T.: A Method for Testing In Vitro Resistance of Group A Hemolytic Streptococci to Sulfonamides, Proc. Soc. Exper. Biol. & Med. **58**: 130-133 (Feb.) 1945.

4 feet. In many rooms the bunks were arranged in blocks of six (i. e. two triple decked bunk sections) with no space between the sections. The men were required to sleep head to foot throughout.

Most of the training at these schools was done in classrooms which required no alteration. Previously existing laboratories were used for special technical work, and some classrooms were converted to that function. The nature of classroom and laboratory work was not in itself of any special consequence as a health hazard.

PERSONNEL

The training course at the three schools was of three and one-half weeks' duration. Trainees were received direct from the several recruit training centers in various parts of the country. The trainees were therefore men who had been in the naval service for a relatively short time. Their past history is, briefly, as follows: After induction these men were sent to a recruit training center, where for approximately ten weeks they were given an intensive course including physical drill and basic naval studies. In addition they received a series of immunizations (smallpox, typhoid and paratyphoid vaccine, yellow fever vaccine and tetanus toxoid). At the conclusion of the training course the men were given ten to fifteen days' leave during which most returned to their homes. At the expiration of leave they returned to the outgoing unit of their recruit training center to await further assignment. It was from such units that trainees at Schools Red, White and Blue were received. On arrival, usually in large groups, the trainees were assigned to companies of about 50 men in each.

During the training period of three and one-half weeks the men received intensive didactic training which necessitated much study and relatively little time off. Liberty was granted one evening each week and from Saturday noon until Sunday night, at which time the trainees were free to engage in whatever recreational activities in the city they desired. At the end of the training period, graduates were transferred to other schools and new groups were received. During these transition periods, occupying one week, there was some mixture of outgoing and incoming groups. Usually the majority of outgoing men had departed before any substantial number of new trainees arrived. There was very little traffic between Schools Red, White and Blue. In each period there was a relatively small group which was held over for the next course, being those men who were allowed to repeat the course having been ill or otherwise deficient during their regular course.

In addition to trainees, each school had a relatively stable group of permanent personnel who served as instructors and carried out administrative duties. This group represented approximately 10 per cent of the personnel at each school. The observations in this paper are confined to the trainees.

PAST EPIDEMIOLOGIC EXPERIENCE

Only one of the schools (Red) had been in operation during the entire winter of 1943-1944. The experience of School Red during that period served to point out some of the epidemiologic characteristics of all three, however, and offered indications as to the necessity of institution of streptococcic disease control. Table 1 summarizes the experiences of School Red with respect to certain acute respiratory infections during the winter of 1943-1944.

It must be borne in mind that the population of the schools was not a static one. Each month a new group of trainees arrived, and this represented a continuous inflow of susceptible individuals. Trainees were found to present varying degrees of infection on arrival, reflecting to a great extent the incidence of infection at the recruit training centers whence they came. In general, during the summer months, trainees arrived relatively free of infections, as indicated by low rates of illness during the week following arrival, and remaining free of infection during their training course. In fall and early winter, comparatively few were ill during the first week of their stay but the incidence of disease rose sharply thereafter, reaching a peak shortly before the end of the training period. In midwinter many more men were ill on arrival or became ill during the the first few days on the station, and thereafter, as before, the incidence rose gradually during the remainder of the training period.

TABLE 1.—*Incidence of Various Respiratory Infections at School Red During the Winter of 1943-1944*

	Monthly Rates per Thousand Men						
	1943		1944				
	November	December	January	February	March	April	May
Scarlet fever	17.4	19.9	32.3	15.9	8.0	4.0	4.1
Catarrhal fever	70.5	64.1	45.8	15.1	40.5	19.2	9.8
Pharyngitis	64.8	30.7	76.3	28.2	18.6	15.2	24.4
Tonsillitis	19.3	23.5	3.2	19.8	18.6	12.0	18.7

TABLE 2.—*Incidence of Group A Beta Hemolytic Streptococcus Infections at School Blue in Sulfadiazine Treated and in Control Groups, 1944*

	Control Group			Treated Group		
	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand
	First Period					
Nov. 15 to Nov. 21	8	420	19.0	2	390	5.1
Nov. 22 to Nov. 28	12	417	28.8	0	388	0.0
Nov. 29 to Dec. 5	6	432	13.9	3	370	8.1
	Second Period					
Dec. 12 to Dec. 22	14	392	25.0	11	436	17.6

When School White went into commission in February 1944, it promptly began to show an incidence and behavior of respiratory disease comparable to that at Red. School Blue had not opened until the summer of 1944 and therefore furnished nothing on which to predict the winter's morbidity other than a close resemblance to White and Red from the standpoint of hygienic circumstances. On the bases of the latter, high respiratory morbidity was anticipated.

During the summer of 1944 all three schools were relatively free of infection, with only 1 or 2 admissions a week for respiratory disease. During October they simultaneously began to show a progressive rise, and by the first of November each had attained a total respiratory rate in excess of 500 per thousand annually. It was therefore decided to institute chemoprophylaxis.

METHOD OF STUDY

For a period of approximately one month prior to the institution of chemoprophylaxis, throat cultures were done on all men admitted to the sick list with acute

respiratory infections. This was done in order to determine the streptococcus flora during that period.

The general plan for the administration and study of sulfadiazine prophylaxis was essentially the same at the three schools. The trainees were divided into two approximately equal groups, one group to receive prophylaxis and the other to serve as untreated controls. The assignment to the groups was made by taking alternate companies of about 50 men each. Companies were made up as the men reported for training. Throughout the study, control and treated groups in a particular school were in close association with one another, since in most instances they were bunked together and shared the messing, training and recreation facilities.

TABLE 3.—*Incidence of Group A Beta Hemolytic Streptococcus Infections at School Red in Sulfadiazine Treated and in Control Groups, 1944*

	Control Group			Treated Group		
	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand
			First Period			
Nov. 14 to Nov. 20.....	12	451	26.6	2	476	4.2
Nov. 21 to Nov. 27.....	13	458	28.4	2	465	4.3
Nov. 28 to Dec. 4.....	14	458	30.6	1	458	2.2
			Second Period			
Dec. 12 to Dec. 18.....	15	530	28.3	4	455	8.8
Dec. 19 to Dec. 25.....	15	530	28.3	11	448	24.6
Dec. 26 to Jan. 2.....	22	530	36.4	13	452	25.2

The treated group received a daily dose of 1 Gm. of sulfadiazine throughout the three and one half weeks of the training course. The control group received no medication. When any man in either group was admitted to the sick list with an acute respiratory infection, a throat culture was done. In addition, from members of the treated group who developed such infections blood was drawn for determination of sulfadiazine level. Both procedures were done at the time the men were admitted to the sick list, usually at morning sick call, from eighteen to twenty-four hours after their last dose of sulfadiazine. Throat swabs were placed in tubes containing broth, collected once daily by the Epidemiology Unit and transported to the laboratory, where they were inoculated into sheep's blood-agar pour plates. From plates positive for beta hemolytic streptococci a colony was fished, grown out in tryptose phosphate broth and grouped. Group A strains were sent to the streptococcus typing laboratory at the Naval Medical School in Bethesda, Md., where typing and resistance studies were done. Typing was done by the capillary precipitin method of Swift, Wilson and Lancefield.[5]

At the end of the training period of three and one-half weeks, prophylaxis was discontinued in each case for one week during which time drafts were arriving and departing. The process of assignment to treated and control groups was then repeated and prophylaxis resumed.

Men who became ill were hospitalized and therefore removed from their groups, usually not returning to duty until the next training period. Fitness for return to duty depended on the man's clinical condition, no attempt at bacteriologic control of convalescent carriers being made. Men with mild respiratory infections remained on duty and are not considered as admissions nor were they confined.

RESULTS

School Blue.—During the preliminary period of study (October 18 to November 14) before chemoprophylaxis was begun, throat cultures were done on 111 men admitted to the sick list with acute respiratory infections. From 45 of these, group A streptococci were recovered. Of these, 20 were type 19, 18 were type 17 and 3 were type 3, and in 4 the type was not determined. Of forty of these strains tested, none showed in vitro resistance to sulfadiazine.

The first period of chemoprophylaxis extended from Nov. 15 to Dec. 5, 1944. During this time there were 26 Group A streptococcic infections in the control group and 5 in the treated group. Of the latter, 1 individual showed no blood sulfadiazine, 3 showed traces and 1 showed a level of 1.7 mg. per hundred cubic centimeters. During this period four of the strains were found to be resistant, 2 occurring in the control group and 2 occurring in the treated group. The first of the resistant strains was recovered five days after the use of sulfadiazine was begun. Three of the resistant strains were of type 19 and one was type 17. Susceptible strains included these two types and in addition types 3 and 36.

During the period from December 5 through December 11, prophylaxis was started in half of the new trainees. During the next ten days there were 14 group A infections in the control group and 10 in the treated group in spite of the fact that most of the men in the treated group had blood sulfadiazine levels of at least 1.5 mg. per hundred cubic centimeters. When the reports of resistance studies became available, it was found that 10 strains of 18 tested during this period showed resistance in vitro. All of the resistant strains were of type 19, while the susceptible strains included types 19, 17 and 3. Five of the resistant strains occurred in the treated group and five in the control group.

TABLE 4.—*Incidence of Group A Beta Hemolytic Streptococcus Infections at School White in Sulfadiazine Treated and in Control Groups, 1944*

	Control Group			Treated Group		
	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand
			First Period			
Nov. 7 to Nov. 13.....	4	676	5.9	0	444	0.0
Nov. 14 to Nov. 20.....	6	703	8.5	0	393	0.0
			Second Period			
Nov. 28 to Dec. 4.....	15	611	24.5	1	575	1.7
Dec. 5 to Dec. 11.....	17	603	28.2	3	555	5.4
Dec. 12 to Dec. 20.....	19	510	28.9	13	512	19.7

5. Swift, H. F.; Wilson, A. T., and Lancefield, R. C.: Typing Group A Hemolytic Streptococci by M Precipitin Reactions in Capillary Pipets, J. Exper. Med. **78**: 127-133 (Aug.) 1943.

Wilson's test for sulfonamide resistance is performed by measuring the ability of small inoculums to grow in the presence of varying concentrations of sodium sulfadiazine in a semisolid, semisynthetic medium reinforced with horse serum. Strains inhibited by 5 mg. or more of sodium sulfadiazine per hundred cubic centimeters of medium were considered susceptible. Those which grew in the presence of 5 mg. or more per hundred cubic centimeters of medium were considered resistant.

On December 22 the controlled study was abandoned in an effort to curb the rising morbidity, all trainees being at that time included in chemoprophylaxis. By Jan. 2, 1945, however, it had become obvious that the drug was having little or no effect. The incidence of group A infections remained high even though practically all of the men becoming infected had high blood levels. At that time the epidemiologic impression that chemoprophylaxis was no longer effective was substantiated by reports received from the Bethesda laboratory that strains of streptococcus showed in vitro resistance to sulfadiazine. Chemoprophylaxis was therefore discontinued. During the eleven days when all trainees received sulfadiazine there were 58 group A infections admitted to the sick list, including 24 cases of scarlet fever. Forty strains from these men were typed and all but one found to be type 19 (the other could not be typed). Of twenty-two of these strains tested for resistance, 16 were resistant and 6 susceptible to sulfadiazine in vitro.

School Red.—During the preliminary period of study (October 20 to November 13) before prophylaxis was begun, throat cultures were done on 67 men admitted to the sick list for acute respiratory infections. Group A hemolytic streptococci were recovered from 21. Ten were type 17, one type 19, two type 3, and the remaining eight were not typed. Sixteen cultures were tested for resistance but none was resistant.

The first period of controlled chemoprophylaxis was, as at School Blue, successful. In the control group there were 39 group A streptococcic infections and in the treated group there were only 5. During this period three resistant strains were recovered, two in the control group and one in the treated group. The first one (a type 17 strain) was recovered only three days after chemoprophylaxis began from a case of scarlet fever occurring in the treated group. The other two resistant strains belonged to types 17 and 3 respectively.

When the new group of trainees who arrived during the period December 4 to December 10 was started on chemoprophylaxis, the infection rate in the treated group was considerably lower than in the control group during the first week. For the next two weeks, however, infections increased in the treated group, even though satisfactory blood sulfadiazine levels were being found in most men. Five showed no blood sulfadiazine, 15 showed levels of less than 1 mg. per hundred cubic centimeters and 20 had levels over 1 mg. per hundred cubic centimeters. During the first week of this period, four more resistant strains appeared, two (both type 3) in the control group and two (types 3 and 17) in the treated group. During the whole period (December 11 to January 2) eleven of thirty-five (32 per cent) of the strains tested from the control group were resistant. Susceptible strains seemed to have disappeared from the treated group, since of eleven strains tested all were resistant. The resistant strains belonged to types 17 and 3.

School White.—During the period October 18 to November 6, before chemoprophylaxis was started, throat cultures were done on 54 respiratory admissions and group A hemolytic streptococci were recovered from 11. Four of these belonged to type 19, two to type 3 and one each to type 17 and 28. Of eight strains tested, none was resistant to sulfadiazine.

The first period of controlled chemoprophylaxis began on November 6 and extended for two weeks, having been started after the men had been in training one week. In the control group there were 10 group A infections, while the treated group had none. From the 10 infected men in the control group, organisms of types 3, 17 and 19 were recovered, all susceptible to sulfadiazine in vitro.

The second period (December 11 to January 2) began favorably and for the first two weeks infections were considerably higher in the control group than in the treated group. During the final nine days, however, there were 13 infections in the treated group as compared with 19 in the controls. The first resistant strain appeared on the third day of the prophylaxis and occurred in a member of the control group. This man had arrived one week previously from a recruit training center where resistant strains are known to have been present. During the next ten days only two more resistant strains appeared, one each from the controls and treated groups. During the final weeks, however, an abrupt increase in the prevalence of resistant strains took place coincident with the increase in infections in the treated group. During this whole period of forty-one strains from the control group tested, ten (24 per cent) were found to be resistant in vitro. In the treated group twelve of fifteen strains (80 per cent) were resistant. Types 17, 19, 3, 30 and 6 were all encountered during the period, but resistant strains all belonged to type 3.

SUMMARY AND COMMENT

In November and December of 1944 a controlled program of chemoprophylaxis against hemolytic streptococcus infections was employed in three small naval training schools. The incidence of such infections had, both during the period of observation and in the past, reached epidemic proportions. The factors considered to have predisposed to this condition are as follows: (*a*) Owing to the exigencies of the service, crowded living conditions unavoidably prevailed; (*b*) there was a repeated introduction of susceptible individuals because of the fact that each month there was a nearly complete turnover of personnel; (*c*) trainees were received from recruit training centers, several of which had a high incidence of streptococcic infections; (*d*) the schools were located in an area where the climate in winter is favorable for the dissemination of streptococcic infection.

The epidemiologic picture at the three schools was considerably different from that seen in more static populations. The repeated introduction of susceptible individuals produced winter-long epidemics, which varied with the degree of infection at the training centers whence the trainees came and also with the local epidemic situation in the school into which they came. Instead of a curve rising to a peak and then gradually decreasing, the epidemic curve at the schools being discussed was represented by a series of peaks occurring late in the training period of each group of trainees, the level of the curve and the magnitude of the peaks becoming progressively higher during the winter.

In November 1944 rising streptococcus morbidity rates led to the institution of sulfadiazine prophylaxis. In each school the first period of chemoprophylaxis was successful, significantly fewer streptococcic infections occurring in the groups receiving prophylaxis than in the control groups. During this period sulfadiazine resistant streptococci were not recovered in one school and were present in small numbers in the other two.

The second period of chemoprophylaxis with new trainees resulted in a progressive failure to prevent streptococcic infections in the treated group. This failure was related to the increasing prevalence of strains

of group A hemolytic streptococci which showed in vitro resistance to sulfadiazine.

The question of the mechanism of drug resistance is controversial. It is not known whether it represents a genetic mutation occurring spontaneously in nature, the mutants being selected for survival because of their ability to withstand the presence of the drug, or whether the drug itself induces a change in the organism by direct action. Regardless of which of these happens to be correct, the resulting epidemiologic problems are the same, once resistant strains occur.

It is a matter of considerable interest, however, to know how frequently streptococci become resistant to sulfonamides, and unfortunately it is impossible from the data at hand to make a reliable estimate of this. In the epidemics which have been described here it is impossible even to say whether the resistant strains which became prevalent acquired their resistance locally or were imported from a naval training center where resistant strains of the same types were known to have existed and from which drafts of men were frequently received. The number of men from that training center constituted from 1 to 5 per cent of the total trainees, and drafts had been received from there during the six months preceding this study. The appearance of resistant strains at each of the schools was preceded by the arrival a week to ten days previously of drafts of men from that training center. It is quite possible that some of these men were carriers of resistant strains. (To establish the possibility of this origin of the strains, cultures were taken of 58 men from that training center on arrival. Twenty [34 per cent] were found to be group A hemolytic streptococcus carriers, 9 [16 per cent] were carriers of types 3, 17 and 19, and of five of the latter strains tested, two were sulfadiazine resistant in vitro.) If one postulates the introduction of resistant streptococci by these men, one is confronted with the question of why the strains were not recovered during the period prior to chemoprophylaxis and were present in such small numbers during the first period of chemoprophylaxis. This question cannot be answered with any degree of certainty. It may be that the strains were actually present in small numbers during the early part of this study and did not spread at that time because of the absence of epidemic conditions. The possibility, however, that the resistant strains encountered here were not derived from existing strains but acquired resistance during chemoprophylaxis cannot be denied.

The question of the duration of resistance in a particular strain is also one which cannot be answered by data at hand. Four months after the termination of chemoprophylaxis in the three schools under discussion, resistant strains of types 17, 19 and 3 were still prevalent. However, this does not necessarily mean that the strains were the progeny of those previously encountered, for during those four months more than 90 per cent of the trainees received came from a training center at which these strains had become prevalent.

CONCLUSIONS

1. Sulfadiazine given in daily doses of 1 Gm. effectively prevented acute respiratory infections by group A beta hemolytic streptococci in the absence of sulfadiazine resistant organisms in three small naval training schoools.

2. Sulfadiazine prophylaxis became progressively less effective as strains showing in vitro resistance to the drug became prevalent.

THE TREATMENT OF COMPOUND FRACTURES OF THE FEMUR

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War offers an unexcelled opportunity for the observation and study of compound fractures. From diverse theaters of war a large number of these injuries, which were originally treated by other surgeons, are finally brought under uninterrupted supervision with almost ideal hospital facilities so that the results of different methods of therapy can be studied and compared. Under these conditions, impersonal conclusions can be reached which are not hampered by the unavoidable human optimism that may cloud the opinion of the proponent of some particular method of treatment.

This injury is a serious surgical problem. In World War I the record shows a total of 5,138 compound fractures of the femur with a mortality in the vicinity of 23 per cent and with a permanent disability of more than 50 per cent in 48 per cent of the cases (fig. 1).

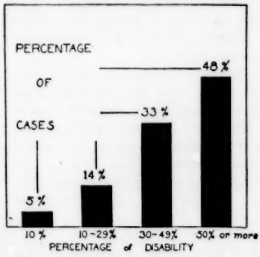

Fig. 1.—Rating for disability in the 5,138 fractures of the femur in World War I.

Our object in this study is to review the late results of 163 fractures of the femur and to formulate conclusions against the background of our own experience in two separate theaters. The series includes 117 compound fractures, of which 17 had been treated by early internal fixation. To obtain the proper standard for comparative study, 46 simple fractures are included, of which 24 had been treated by early internal fixation. By inclusion of these four groups (table 1) we hope to throw some light on the etiology of such complicating factors as sepsis, nonunion, deformity and knee stiffness.

Of the 41 fractures treated by open reduction with internal fixation, 36 were fixed by a six-screw plate and 5 by multiple transfixion screws alone. In the 122 fractures treated by traction-suspension alone, skeletal traction was secured by Kirschner wire or Steinman pin inserted in the distal end of the femur or proximal end of the tibia, depending on the level and nature of the fracture. The extremity was suspended in the Keller-Blake half-ring splint with Pierson attachment and balanced by adequate weight, the knee being kept in varying flexion, 15 to 30 degrees. This treatment was begun in the theater of war and usually, when callus formation appeared to be adequate, these fractures were immobilized in a 1½ plaster spica and the patients were transported to general hospitals in the zone of the interior. On arrival, immediate attempt was made to change these patients back to a traction suspension splint. In general, transportation has led to very few difficulties or complications except in rare cases which were transported at a period when the fracture site was not solid enough.

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Although disagreement often occurs regarding technics of treatment, there is complete concurrence in what the primary ideal goal should be—to convert a compound fracture into a simple fracture, an open into a closed fracture. That method which produces the earliest healing of the wound is ultimately the most successful, for skin is the only covering which protects human tissue from such enemies as infection or thermal changes. It is the protecting shield given by nature to safeguard the deeper tissue from damage. The history of wound treatment in the past is an incessant search for wound cover by a multiplicity of methods which attempted to substitute chemical substances, dressings or plaster for this normal shield.

The initial and most vital factor in preparing a compound wound for ultimate closure is complete and thorough débridement performed at the earliest possible time after injury. No change in this opinion has been caused by modern chemotherapy. The operation should consist in excision of the contaminated skin border and removal of all devitalized tissue and of all small fragments of bone which are completely unattached. Removal of very large bone fragments, often making up whole segments of the shaft, is not indicated because they often become revascularized, and, if removed, they create a serious problem in late reconstruction. The hand of conservatism is further strengthened by the fact that large bone fragments, when they do sequestrate, are easily removed after they have served as a bridge for new bone formation. Metallic foreign bodies which are readily accessible should be taken out, but a tedious search for inaccessible small fragments is not advisable unless they lie within a joint cavity. It is remarkable how little bother these multiple shell fragments produce, although a relatively infrequent but important number of cases in which they lead to arterial aneurysms or arteriovenous fistulas must be kept vividly in mind. On the other hand, nonmetallic radiotransparent foreign bodies have been, in our experience, an annoying source of infection and persistent drainage. In these cases we have found as offending agents pieces of clothing, leather and even parts of rubber heels.

The element of time is one of the essential factors in the success of débridement. Cases in which operation was performed within the first twenty-four hours gave a higher percentage of success, as shown in table 2, which includes patients treated without the introduction of any type of internal fixation. The latter were purposely excluded, as they would have confused the issue with new problems.

Although local factors may alter the situation, the advisable surgical procedure after forty-eight hours seems to be wide incision for drainage and the removal of any large masses of necrotized tissue, rather than a formal débridement.

After successful débridement the selection of a method of treatment offers many alternatives, the main ones being (1) closed plaster technic, popularized in its original form in this country by Orr, (2) the Carrel-Dakin technic, (3) surgical closure of the wound by (*a*) primary suture, (*b*) free skin graft, (*c*) delayed closure. The closed plaster technic has the advantages of ease in handling and comfort in transport. It avoids new bacterial invasion because of infrequent dressings and clears up dead tissue by the proteolytic effects of bacteria. A material benefit from this method is the localization of infection by complete splinting. Against these advantages are the obvious adverse factors of healing with large adherent scars, which often mat down muscles, fascia and nerves; the chronic absorption of toxins with resulting toxemia, the loss of protein from chronic exudate, and especially heavy scar formation with delayed healing, leading to an unavoidable delay in the performance of reconstructive surgery. The field of application of this method is still large, because many wounds are too extensive to be closed, and its value in transportation makes its use imperative. However, we do not believe that large wounds treated by this method should be allowed to go unaided with resultant formation of a large contracting scar, but that instead the wound should be vigilantly watched for the opportunity to close it or reduce its size by the use of a free skin graft, skin flaps or, if necessary, ostectomy. The Carrel-Dakin method of chemical irrigation, although no longer used as a method complete in itself, is still of great value as a procedure for the preparation of wounds, and we have not infrequently taken advantage of it to free a wound of minor necrotized tissue and superficial sepsis in preparation for some secondary closure.

Primary suture has been widely used in civilian practice, offering a brilliant method of rapid transmutation of an open into a closed fracture. It is particularly useful in fractures compounded from within or those presenting little injury to soft tissue, but in the large wounds both in civilian life and in war surgery the hazard of an occasional infection, principally of an anaerobic type, leading to loss of life or limb, creates a need for a safer approach to the problem. To circumvent this hazard, surgeons started covering the wounds immediately after débridement by large free split thickness skin grafts which were loosely sutured as a wound dressing. This procedure often gives brilliant results (fig. 2), although at times the plastic removal of adherent skin at a later date may be necessary. One of us (R. S.-H.) used this method in a number of recent air war wounds and found it free of danger. The method should always be considered when the surgeon is confronted with a wound area too large for secondary closure.

Realizing that early closure of the wound and prompt establishment of function was desirable, certain surgeons toward the end of the last war cautiously began to carry out delayed primary suture and secondary suture. This was done, however, with the ever present fear of stirring up severe infection, particularly of the anaerobic type, and in the history of the last war [1] it was strongly emphasized that "cooperation of a bacteriologist is indis-

TABLE 1.—*Treatment of Fractures of the Femur*

Internal fixation	
Simple	24
Compound	17
No internal fixation	
Simple	22
Compound	100

TABLE 2.—*Time of Débridement*

		12 Hrs.	24 Hrs.	48 Hrs.	72 Hrs.	Unknown
No infection	29	23	4	..	..	2
Mild infection	44	28	9	..	..	7
Severe infection	27	11	9	5	2	..
Total patients	100					

1. Ireland, M. W.: The Medical Department of the United States Army in the World War, Washington, D. C., Government Printing Office, 1927, vol. 11, pp. 304-314.

pensable in making the decisions as to the indications for delayed primary or secondary suture." On the other hand, surgeons in this war have taken up with enthusiasm this secondary operation, and their almost unanimous opinion seems to be that bacteriologic reports are no longer of definite importance but that the clinical appearance of the wound is the deciding factor. This difference of approach to the same surgical goal comes in part as a result of the use of modern antibacterial agents, which have removed the hazards from these procedures. It should be emphasized, however, that neither penicillin nor the sulfonamide drugs should be used with unbounded confidence as prophylactic remedies because, as has often been stated, they are ineffective in the presence of devitalized tissue; so that closure should not be attempted when this is present.

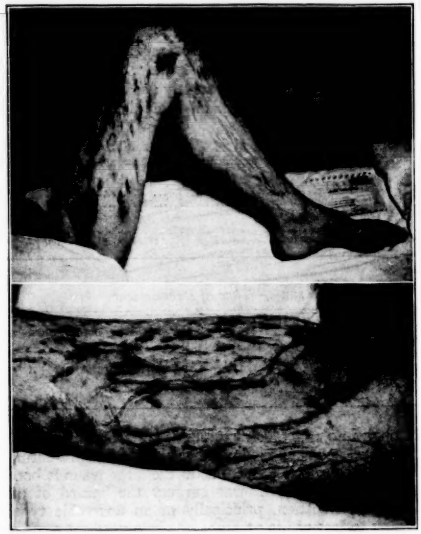

Fig. 2.—Patient was wounded Oct. 2, 1944 in France, when he stepped on an antipersonnel mine. He had immediate débridement. There was loss of about 50 per cent of the quadriceps muscles. October 16 in a general hospital in the Mediterranean theater he had the skin graft, which healed. Flat nonadherent scar five months after large wound had been covered with a split thickness graft. Excellent range of knee motion.

Delayed primary suture is defined as that procedure in which the edges can be approximated without excision and will then heal, whereas, in secondary suture, excision of the granulation tissue and of the whole wound is necessary for successful healing. The procedure is similar to that used for excision of an ulcer. The stage of repair of the wound and therefore the time factor determine the type of procedure to be used. In the period of time between débridement and the performance of delayed closure the wound should be left freely open with a gently placed pack of plain or petrolatum gauze, and the fracture should be well splinted. The most ideal period for delayed primary closure of femoral fractures appears to be between the seventh and the twelfth day. Table 3 is not in itself conclusive evidence but does confirm our clinical experience.

It is not our purpose to discuss the technical details of delayed closure, which have been fully described in the recent literature, except as they may be seen to have effect on the late results. The brilliant work of Churchill,[2] Lyons [3] and Hampton [4] has emphasized the importance of adequately preparing the local factors as well as the systemic factors for this procedure. Restoration of total blood protein and of a normal hematocrit and red cell count plus the avoidance of a vitamin C deficiency have all been shown to be of importance. Local factors leading to successful closure are an approximation of the tissues without tension, proper splinting and the avoidance of dead space, plus good hemostasis. Among the most serious infections we have seen are those in which the last two principles have not been observed. In all cases in which the control of bleeding is in doubt or in which there is dead space posterior counter drainage should be instituted, for otherwise this leads to an infected blood clot or abscess formation with subsequent death of bone. Counter drainage for a period of two to three days seems to us to be indicated for a large proportion of cases. When successful delayed closure has been obtained, the general condition of the patients has been excellent and locally there is a firm and supple scar which allows early remedial exercises and which also permits the performance of reconstructive surgery much sooner.

TABLE 3.—*Time of Delayed Closure*

		1st Week	2d Week	3d Week	4th Week
No infection	19	5	12	1	1
Mild infection	10	1	4	2	3
Severe infection	4	1	1	2	..
Total patients	33				

INCIDENCE OF INFECTION

A very high proportion (29 per cent) of compound fractures without internal fixation healed without sepsis. When this group is added to the 44 per cent which healed within two or three months and which we have classified as mild infection because they represented mainly soft tissue sepsis, the whole picture presents a brilliant achievement of war surgery. The infected group (27 per cent) includes many cases of extensive loss of soft and bone tissue with vascular damage in which sepsis is almost unavoidable (fig. 3). Of those cases treated by early internal fixation through an open wound, a total of 19 were seen by us, 17 of which are included in this study. In these the incidence of severe sepsis was about 50 per cent higher than in patients treated without metal fixation. In most of these men the plates or metal had to be removed. An almost identical finding was noted in the series of compound fractures of other long bones treated by early metallic fixation, which we now have under study, with the exception that in the tibia the prognosis seems to be somewhat worse than in the other bones. Of particular interest is the fact that in some cases severe infection seemed to be under control for several weeks while chemotherapy was being administered, manifesting little local or general reaction but later became clinically evident. This factor may explain the enthusiasm of some surgeons in the forward areas

2. Churchill, E. D.: Surgical Management of Wounded in Mediterranean Theater at the Time of the Fall of Rome, Ann. Surg. **120:** 268-283 (Sept.) 1944; Bull. U. S. Army M. Dept., January 1945, No. 84, pp. 58-65.

3. Lyons, C.: The Philosophy of Wound Management in the United States Army, Bull. Am. Coll. Surgeons **30:** 13-14 (Feb.) 1945.

4. Hampton, Oscar P., Jr.: Personal communication to the authors.

who have not had the opportunity to follow the later phases of the problem. Two illustrative cases are the following:

Patient 1, wounded by a shell fragment Oct. 14, 1944, sustained a slightly comminuted compound fracture. October 14, within twelve hours, débridement of the wound and application of a spica cast were done. On October 22 secondary closure

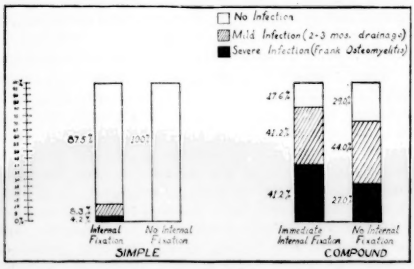

Fig. 3.—Incidence of infection in fractures of the femur. Under internal fixation in the compound group are included cases which had been plated within the first month, either in the presence of an open wound or within two weeks of its closure.

of the wound was done and through a separate incision the fragments were fixed together by four metallic screws. No counter drainage opening was made. The patient received penicillin from the date of injury to the date of secondary closure, and penicillin was continued postoperatively for several weeks. On arrival at the zone of the interior in January 1945 he presented profuse drainage, a temperature of 104.10 F. and a large abscess in the postlateral part of the thigh which necessitated surgical incision. On February 12 the screws were removed. Despite severe infection and drainage the fracture was felt to be united on February 11, although a large area of bone had sequestrated. Further surgery will be needed.

Patient 2, aged 27 years, was struck by a shell fragment in the right lower thigh March 2, 1944, sustaining a compound comminuted fracture of the left femur and wound of the right thigh. On March 5 gas gangrene appeared in the right thigh and midamputation was done. On March 19 operation was performed on the patient and a metallic plate was placed in

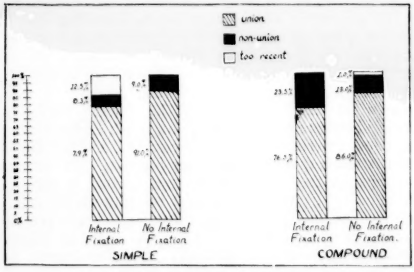

Fig. 4.—Incidence of nonunion in fractures of femur.

the left femur in the presence of an open wound. No counter drainage was employed. Traction was used following the operation until March 25, when a left hip spica was applied. On June 15 a large abscess of the left thigh was incised and drained. The right stump healed in five weeks. X-rays on August 15 showed an extensive comminuted fracture of the left third of the femur with obvious osteomyelitis, and many sequestrums could be distinguished. Because of persistent drainage of the left femur on September 12, a sequestrectomy was done and the plate was removed. This led to reduction in drainage and increased comfort of the patient. Penicillin was used before and after operation for several weeks.

In this series, cases treated by internal fixation have been done at various stages and with some difference in technic. The operation has been done at times immediately after injury through the compound wound or after closure of this wound by immediate fixation through a separate incision or, lastly, delayed a few days until the wound has healed. The best results and the procedure which seems to us to offer the least danger for that type of fracture wherein internal fixation appears indicated consisted in the following sequence: A thorough débridement was done early, and this was followed by delayed closure of the wound, performed about seven to ten days later. After healing of the original wound (an average of sixteen days) the fragments were approximated through a separate longitudinal incision and held together by metal fixation. When the type of fracture allows, the use of screws has given better results than the plate, probably because of the lesser surgical trauma. As previously mentioned, a small counter drainage incision may be advisable.

EFFECT OF CHEMOTHERAPY

Seventy-three cases of the total 100 compound fractures treated without internal fixation had adequate record of the use of chemotherapy. This included both

TABLE 4.—*Study of Effect of Antibacterial Agents in 100 Cases of Compound Fractures of Femur*

	Total	Recorded Use of Antibacterial Agents	Sulfonamides	Penicillin	Sulfonamide and Penicillin
Clean	29	24	3	7	14
Mild	44	28	7	12	9
Severe	27	21	1	4	16
	100	73			

penicillin and a sulfonamide compound or both. Locally the sulfonamide drug had been used almost universally as a first aid, but we have felt that an evaluation of its use could not be made in the zone of the interior and have included in the group only cases of adequate systemic administration. These findings again prove the fact that modern antibacterial agents may produce excellent results in controlling infection and in reducing complications but that they are impotent in the presence of tissue which has lost its blood supply and which does not allow the drug to come in contact with infection.

The effect of antibacterial drugs is shown in table 4.

INCIDENCE OF NONUNION

For the purpose of standardization, five months has been used as the period of time considered normal for the completion of bone healing. When union occurred between five and seven months it was classified as delayed union, whereas cases which showed neither clinical nor radiologic evidence of bone union beyond seven months were classified as having reached the stage of nonunion. In a few instances, however, such as in the absence of a large segment of bone, the diagnosis of nonunion was made earlier. For simplicity of demonstration, only the nonunion cases are shown in the graph. Considering the frequency of severe injury with comminution and absence of bone fragments, the proportion of bone union in the cases treated by external splinting

was extremely high, 86 per cent. This was definitely higher than the finding in fractures treated by internal fixation. A comparison of the behavior of union in simple fractures treated both by open and by closed reduction seems also of value, because it demonstrates that in spite of the improved apposition of fragments in the open cases there is little difference in the period needed for bone healing (fig. 4).

The state of delayed union and of actual nonunion appears directly related to degree of bone loss or damage, distraction and the presence of infection, particularly of a severe type. Distraction, even of a very minimal amount, is particularly harmful. To avoid separation of fragments due to excessive weight, we believe that a very satisfactory way of handling the Thomas splint is to reduce the fracture manually and then use the traction suspension as a method of holding the reduction rather than of producing traction. There are, in addition, certain mechanical factors existent in instances in which internal fixation has been employed. The immediate effects of the foreign body are often gratifying, such as restoration of axis alinement and of end to end approximation. The delayed effects may be vicious: (*a*) Distraction appears to be a paramount influence. This distraction interval appears late and is

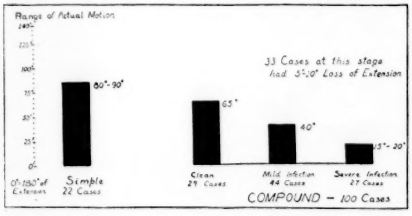

Fig. 5.—Average range of knee motion in fractures of femur nine and a half months from date of injury.

due to actual resorption at the bone ends, a normal finding in the process of fracture healing. This factor is eliminated in transverse fractures in which no rigid device is employed, internal or external, and in which the bony ends may continue to approximate, as they may in traction suspension; nor is this factor dominant in oblique fractures, which lend themselves so well to multiple screw transfixions. (*b*) There is occasional loosening of plates and screws. (*c*) Failure of callus formation occurs on the side adjacent to the foreign body, which is strikingly evident in many cases in which callus appears abundantly on all sides of the fracture. This failure of callus formation, and the persistence of the fracture gap on the side of the plate, are difficult to explain, since in no instance in which plates have been removed (in simple, uncomplicated fractures) has there been any evidence of actual untoward reaction of the body tissues to the stainless steel foreign body.

OTHER COMPLICATIONS

Refracture.—Five patients sustained a refracture during convalescence. This reinjury occurred on an average of seven and one-half months from the original accident and roughly about five to six weeks from the beginning of ambulation. The application of the Thomas caliper splint during the early stages of convalescence has been obligatory in the service, but this complication illustrates how ineffectual such a splint may be in injuries occurring in the upper half of the femur. In fact, it may at times act as a lever throwing the point of greatest stress at the fracture site. To increase the efficacy of the splint we have increased the angle of tilt of the ring so that its outer part is above the trochanter. Because of the tendency to angulate and refracture at this high level, a period of suspension with exercise should be carried out for three to four weeks beyond the time when clinical union is apparent.

Renal Lithiasis.—In this series 6 patients have shown clinical evidence of kidney stones, which usually appeared as the patient became ambulatory. Although this incidence seems high, it does not give a true picture of the frequency of urolithiasis in femoral fractures. Russel and Smith [5] of this service command have carried out routine radiographic investigations in 50 consecutive femurs and have found that 8 of these men presented radiographic evidence of renal calculi. The prevalence of this finding during the long period of recumbency needed in the traction suspension treatment suggests that through inadequate fluid intake and gravity stasis there is improper renal drainage, so that particular care should be taken to keep the fluid intake at a high level, to create postural changes and to give abdominal exercises. Repeated urine examinations are indicated in all cases under traction treatment. Widespread use of sulfonamides may play a part, although these stones to date have failed to show any evidence of the drug. Fractures of the long bones of the arms which are ambulatory do not have this complication, suggesting that increased calcium output is not the answer.

Knee Motion.—Considering the fact that, because of military reasons, this series represents a very young age group, the restoration of knee function represents one of the most disheartening problems that we have had to face. The whole problem of knee stiffness is a very complex one and offers a challenge which we have failed to meet. Two factors which are definitely helpful have been, however, the use of resistive exercises and the use of delayed closure.

In this series the average period from the date of injury to the last examination was only nine and one-half months, so that unfortunately the statistics do not tell the complete story of the end results but do describe the slowness in restoration of joint motion. A later review of these cases should be made. Successful delayed closure has brought about much earlier healing and less scarring, so that exercise and activity can be started earlier, leading to better function. An attempt to separate the results of the men treated by internal fixation or by traction showed no appreciable difference. The findings were not entirely conclusive because a number of the patients who had had sepsis or delayed union had too recent splinting. For that reason the groups were classified as noted in figure 5.

In the pathology of knee stiffness many factors are included. There is often a matting of the quadriceps at the site of injury, leading to a checkrein effect. Frequently there has been an acute synovitis with effusion which is followed by secondary matting of the quadriceps pouches, and not infrequently we have noted traumatic degeneration of the articular cartilage of

5. Russel, Stuart W., and Smith, Louis D.: Personal communication to the authors.

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the patella, the so-called chondromalacia. All these pathologic changes lead to a secondary capsular contraction with intra-articular adhesions.

No difference has been noted in the knee motion between cases treated by skeletal traction in the lower end of the femur or in the upper end of the tibia, with the single reservation, however, that femoral pins are at times improperly placed so that it would seem reasonable that the less experienced surgeons should use the tibial site.

An important disability is the limitation of extension of 5 to 10 degrees, which is noted in about one third of the cases. This is usually an active loss of motion but may also be passive. We attribute this finding to the treatment of the knee for a long time in a position of flexion, a position which does not allow the vastus medialis to come into a normal function. In this prolonged position of flexion the intra-articular structures may also become temporarily adherent and produce the passive restriction. This disability can be corrected after several weeks of active exercise, but its presence argues in favor of treatment of fractures above the lower third with the knee in full extension.

PHYSICAL THERAPY

Exercise therapy of the thigh muscles should be started as soon as the wound is healed. Static exercises, such as quadriceps setting, can be done in a Thomas splint suspension or in a plaster spica. These exercises should be repeated throughout the day and should be done with considerable force in order to be efficacious. Remedial exercises should at first be given to correct the atrophy and later to produce agility, coordination and endurance. It is important to separate these two phases and to maintain in one's mind the important principle that exercise therapy must have resistance to produce power and hypertrophy, and repetition of movement to lead to endurance. Application of exercise on this basis has led to the most encouraging results that we have seen. In this command Capt. Thomas DeLorme [6] has applied the paraphernalia of professional weight lifters, consisting of an iron boot with attached bar bells, in order to produce resistive exercises for these femoral fractures. This has led to a remarkable increase in muscle power and in stability of the knee, with a secondary increase in joint motion. This change from the passive to active exercise offers hope for the future, when thigh muscles are seen in the injured side which may at times have a greater circumference than those of the normal thigh. Because of the ability to introduce exercise therapy so much earlier, cases which have had a successful delayed wound closure result in better function.

CONCLUSIONS

1. Early and adequate débridement is the most vital factor in the successful treatment of a compound wound.

2. Modern chemotherapy has not altered this opinion, although the use of bacteriostatic drugs has brought brilliant results in controlling the invasive infection and in reducing the number and severity of complications.

3. The principle of converting an open fracture into a closed one by delayed wound suture is strongly endorsed because it insures, with minimal hazard, rapid healing and little scar formation.

4. Conservatism in removal of large bone fragments is advocated, since it lessens major problems of reconstructive surgery.

5. An analysis of 163 fractures of the femur treated in various theaters of war indicates that extremely gratifying results are being obtained with the conservative treatment of traction in balanced suspension. There has been a low incidence of sepsis and a high percentage of bone union without deformity.

6. The use of early internal fixation in the presence of an open wound is accompanied by greater danger of complication. When indicated, in a few selected cases, internal fixation is safer if performed soon after the healing has been completed following secondary closure. The operation should be performed through a separate longitudinal incision with temporary counter drainage. When the type of fracture permits, multiple screw fixation is superior to the use of plates because of lessened surgical trauma.

7. The early use of active exercise, with carefully supervised resistive exercise during convalescence, offers a hopeful opportunity for the improvement of knee function.

350 Post Street, San Francisco.

6. DeLorme, T. L.: Muscle Development of Use of Heavy Resistance Exercise, to be published.

ABSTRACT OF DISCUSSION

DR. GUY A. CALDWELL, New Orleans: This review by Lieut. Cols. Soto-Hall and Horwitz of the late results obtained in 117 compound fractures of the femur sustained in battle contains several lessons which have been emphasized by research and experience in civil hospitals during the war. It has been shown by the National Research's Council's Subcommittee on Infected Wounds and Burns that major emphasis must be placed on adequate, well timed surgical measures rather than on chemotherapy in the care of compound fractures and that plating of the fracture through an open wound materially increases the danger of serious infection. In civil life the patient may reach the hospital so promptly that definitive operation may be done in less than three hours, and it often is possible to close the wound primarily and without tension. The temptation to use internal fixation under these conditions is great. However, the late results in cases so treated in our service at Charity Hospital in New Orleans over a period of two years have been so discouraging that we have almost abandoned the use of plates and screws in compound fractures. We are finding also that, when tissue damage is great, gross contamination is apparent and closure difficult, it may be the shorter road to early healing to leave the wound open and close or graft it secondarily. Although the total number of fractures occurring each year in America is comparable to those occurring in battle casualties, they are so widely scattered that they cannot be concentrated in a few special centers. The tendency to transport the patient to the nearest hospital regardless of its facilities or its surgeons' ability has always contributed to the poor results. Free choice of a physician by the patient certainly is desirable, but the desirability is predicated on the assumption that all physicians are equally competent to treat every condition or are fully conscious of their limitations and will promptly refer the patient to a competent specialist. Not until every physician learns to recognize and refer serious fractures to competent centers and not until the surgeons in those centers nominate and support the best qualified men to supervise their fracture services will the results of fracture treatment in civil practice approach those realized in this war.

DR. J. ALBERT KEY, St. Louis: This paper again indicates that the Army is obtaining satisfactory results with the traction suspension method of treatment of fractures of the femur which it has adopted as standard. I agree with early débridement and that the wound should be closed only when the surgeon can observe the patient until danger of infection has passed. The delayed primary or early secondary closure of the wound and the covering of large wounds by split skin grafts when the skin cannot be closed because of tension are valuable procedures. The skin graft acts as a sterile dressing. From this paper I am not able to determine the relative value of sulfonamides and penicillin or even whether they influenced the

incidence and extent of infection. This is because no two cases are alike. Not only do wounds vary, but also the contamination and the resistance of patients vary. Consequently, one should not condemn the use of internal fixation in all compound fractures. It is quite possible that the increased incidence of infection resulted from severe wounds when internal fixation was indicated as a life saving measure. In civilian practice in the hands of competent surgeons, modern internal fixation combined with chemotherapy and adequate external fixation is a relatively safe and effective method of treating selected compound fractures. This series confirms previous knowledge that traction methods of treatment are just as effective in obtaining union as are open reduction and internal fixation. The incidence of refracture seems rather high. This is partly due to the use of the Thomas caliper walking splint in convalescence. This gives a sense of false security and may result in refracture or bowing. The patient should remain in bed after traction is released and exercise his limbs against gravity and resistance until union is solid enough for crutch walking. Conclusions as to stiffness at the knee will be modified later, as this stiffness will lessen with use. The limitation of extension could be lessened by placing skin traction on the lower part of the leg with the knee straight for a short time while the fracture is consolidating and after union has been obtained but before the patient has been got up on crutches. Traction and suspension is not the only method of treating fractures of the femur, and in civilian life the surgeon should use the method which gives the best results in his hands. An example of this is the brilliant results obtained by manipulative reduction and immobilization in a plaster of paris spica cast in the hands of the late Willis Campbell.

DR. RALPH SOTO-HALL, San Francisco: Dr. Caldwell's remarks emphasize well the parallel progress that has taken place in civilian and military practice through the years of the war. His conclusions relative to chemotherapy, débridement and plating of compound fractures concur with our military experience. Colonel Horwitz and I feel that the great margin of safety resulting from handling cases with secondary closure will not be readily given up in the future in civilian hospitals for the treatment of severely contaminated and badly lacerated wounds. Why close a severe compound wound in a few hours with risk and hazard when it can be done in a few days practically without peril? The Army has made an effort to concentrate its well trained personnel. The treatment of compound fractures by internal fixation has been confined largely to specially selected installations, leading to an extensive experience for the personnel. For this reason our impartial evaluation is significant because, if a greater percentage of infection and nonunion will occur in the hands of experienced men, certainly we must expect a dismal outlook when plating of compound fractures is performed by less qualified surgeons. Dr. Key has suggested that the increased incidence of infection in these cases might have resulted because of more severe wounds. Actually this did not occur in our series because these cases presented no greater severity of wound or complication than those treated by the traction method. Knee motion, as he has suggested, has increased with time, but the progress has been slow, the problem is still unsolved and we must seek new methods of approaching this complication.

Intracerebral Hemorrhage.—Hemorrhages into the substance of the brain in patients with injuries to the head usually develop at the time the blow is sustained and are due to laceration of cortical or subcortical vessels. Rarely the hemorrhage may have its onset several days after the injury. The cause of these so-called "late hemorrhages" is not clear. The differential diagnosis between traumatic subcortical clot and extradural or subdural hematoma cannot be made without operation. Evidence is accumulating that operative removal of the intracortical clot is feasible and is followed by marked improvement in the patient. Delayed onset of hemiplegia may also occur as the result of thrombosis of cerebral vessels consequent on incomplete tearing of their coats.—Merritt, H. Houston; Diagnostic Considerations in Patients with Head Injury, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

MEAT IN THE DIET OF PREGNANT WOMEN

RUTH M. LEVERTON and THELMA J. McMILLAN
Lincoln, Neb.

The importance to both mother and child of adequate protein intake during pregnancy has been well established. The medical and nutritional aspects of the problem have been reviewed recently by Williams [1] in THE JOURNAL. Numerous and thorough studies of the diets of pregnant women reviewed by him indicate, however, that the protein intake of these women seldom equaled the National Research Council recommendation of 85 Gm. daily and that it was less than 60 Gm. a day in about 50 per cent of the cases.

The purpose of the study being reported was to test the effectiveness of a simple dietary recommendation that could be made to the patient by the physician, whether family doctor or specialist, and which if followed would insure an increased protein intake for the pregnant woman, especially the one with anemia.

The dietary recommendation selected for test was "Eat plenty of meat—have a generous serving at least twice a day." The reason for the choice of this particular recommendation lay in the fact that (1) the quantity and quality of protein of meat make it a superior food source of this dietary essential and therefore the size of servings recommended need not be incompatible with any individual's capacity for food, (2) meat contains a liberal assortment of nutrients other than protein, (3) meat rates high in appetite appeal and consumer acceptability, (4) meat is procured at the food market rather than at the drug counter and (5) there is a widespread misconception that women should not eat much meat, especially during pregnancy.

The women who served as subjects for the study were secured through the cooperation of local obstetricians. All were private patients of adequate economic status, had histories of generally good health and were under 33 years of age; all of them thought they were following their physician's advice "to eat a good diet"; the majority of them were receiving additional vitamin A and D and calcium phosphate.

To insure that the women were receiving "plenty of meat," they were supplied with a 5 ounce serving of lean meat daily (three fourths of the time it was beef). They ate this supplementary meat in addition to their self-chosen diets and at times other than the main meal (which usually included meat). The meat was bought by the laboratory in large quantities, cut into individual servings, wrapped, frozen and stored. Deliveries were made to the women once or twice a week, depending on their home refrigerator storage space.

For each woman thus supplied with meat there were two experimental partners, women of approximately the same age, who had had the same number of children, if any, were at the same stage of pregnancy and whose blood had the same hemoglobin value. One partner received daily a vitamin B complex supplement which furnished in capsule form 2 mg. of thiamine, 1 mg. of riboflavin, 20 mg. of niacin and small amounts of other factors of the complex. The other partner was a negative control and received no supplement.

The supplements of meat and vitamin B complex were begun early in the fifth month of pregnancy and

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Obstetricians of Lincoln cooperated by providing patients for this study.
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1. Williams, P. F.: Importance of Adequate Protein Nutrition in Pregnancy, J. A. M. A. **127**: 1052 (April 21) 1945.

continued for three months after delivery; the control member of each trio was studied for the same length of time. Each woman kept a record of her food intake for one week during the eighth month of pregnancy, and from this was calculated her protein intake.

The effectiveness of following the "eat meat" recommendation as compared with receiving the B complex supplement and with receiving no supplement was measured by determination of the hemoglobin and red cell content of the blood at monthly intervals. The hemoglobin level was considered a good index to use, because low hemoglobin values during pregnancy have been shown by several workers to be associated with suboptimal protein intakes. A low hemoglobin level warrants attention even though not all cases of anemia in pregnancy present the same blood picture or indicate the same deficiency. Hemoglobin in the venous blood samples was determined by the method of Todd and Sanford and the fully developed oxyhemoglobin read in a Sanford and Sheard photelometer.

More than 75 women, or twenty-five sets of three women each, began as subjects for the study in 1942-1943, but less than half of them completed it. The chief reason for discontinuing a subject was that the women moved away when the husbands were drafted; only a few women had to be discontinued because they were not consistently cooperative or because their families objected to the monthly blood tests.

Results are reported for 33 women, or eleven sets of matched partners. In the table are given the average values for hemoglobin and red cell count for each group at monthly intervals from four months before until three months after delivery. These values are shown graphically in the chart. They were calculated in terms of the percentage of the value at the beginning of the study, i. e. the initial hemoglobin or red cell value for each subject was assigned a value of 100 per cent and every succeeding value was calculated from this base line.

The women who received the additional meat had consistently better hemoglobin and red cell values at all times than did their experimental partners who received either B complex or no supplement. The values for the latter two groups were similar, although

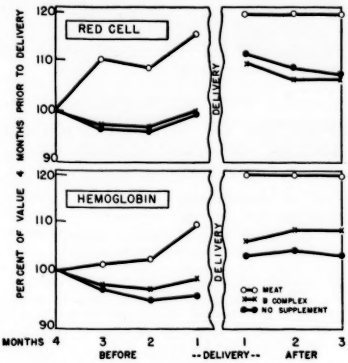
Comparison of Hemoglobin and Red Cell Value of Groups of Women Receiving Meat, B Complex or No Supplement

Supplement	Months Before Delivery				Months After Delivery		
	4	3	2	1	1	2	3
Meat							
Hemoglobin, grams	10.7	10.9	11.1	11.7	12.8	12.8	12.8
Red blood cells, millions	3.8	4.2	4.1	4.4	4.6	4.5	4.5
B complex							
Hemoglobin, grams	10.7	10.5	10.4	10.6	11.4	11.6	11.6
Red blood cells, millions	3.8	3.7	3.7	3.7	4.2	4.0	4.0
None							
Hemoglobin, grams	10.8	10.5	10.3	10.4	11.2	11.3	11.2
Red blood cells, millions	3.7	3.6	3.6	3.7	4.1	4.0	3.9

the B complex group had a slightly higher hemoglobin level, especially after delivery.

One month prior to delivery the women who had had extra meat for three months had an average increase in hemoglobin level of 10 per cent and of 16 per cent in red cell count. At the same time the values for the women who received B complex were 99 per cent for hemoglobin and 100 per cent for red cell count and 95 per cent and 100 per cent respectively for the controls. The protein content of the self-chosen diets at this time averaged 58 Gm. daily for each group of subjects. The additional meat contained 25 Gm. daily, bringing the total protein intake to 83 Gm. for the women receiving the meat supplement.

One month after delivery the meat group had an average hemoglobin value 20 per cent higher than when the meat supplementation was begun, as compared



Comparison of hemoglobin and red cell content of the blood of women receiving meat, B complex, and no supplement during the last four months of pregnancy and for three months following delivery (in terms of the percentage of the initial value).

with 7 per cent and 4 per cent for the B complex and control groups respectively. The red cell values were 20 per cent higher for the meat group and 10 per cent and 12 per cent higher for the B complex and control groups. The values at the end of three months after delivery were very similar to those at the end of one month.

All of the pregnancies and deliveries were without complications. None of the subjects receiving extra meat experienced edema, whereas 3 of the B complex group and 3 of the controls had slight edema.

The nursing record showed that in six of the eleven sets of women the mother who was eating extra meat was the only one of the trio who was still nursing her infant at the end of three months. Eight of the 11 women who had extra meat nursed their babies for at least two months, 5 of the B complex group and 4 of the controls.

No effort was made to evaluate subjective evidence of any advantages of either supplement. The subjects receiving extra meat who had had previous pregnancies almost invariably volunteered the comment that they "did not feel so tired all the time" as they had during other pregnancies.

SUMMARY AND CONCLUSIONS

Because of the widespread inadequacy of the protein intake of pregnant women it is desirable to find some simple dietary recommendation which if followed would be effective in increasing their protein intake.

The study reported has tested the effectiveness of the recommendation "Eat plenty of meat—a generous serving at least twice a day." Though such a recommendation is definitely uncommon, it has the advantage of being easy to follow as well as furnishing an appreciable amount of several nutrients.

Women whose intake of protein was augmented by receiving a 5 ounce serving of meat daily in addition to their self-chosen diets during the period from four

months before delivery until three months after delivery had higher hemoglobin and red cell values, less edema and better success in lactation than women who received a supplement of B complex or women who received no supplement.

The results indicate that the recommendation to normal pregnant women to increase their protein intake by eating a generous serving of meat daily in addition to their self-chosen diets would be effective in increasing hemoglobin and red cell concentration, avoiding edema and promoting lactation.

REEXAMINATION OF VETERANS DISCHARGED BECAUSE OF HEART DISEASE OR HYPERTENSION

CAPTAIN SAUL L. SILVER
and
LIEUTENANT COLONEL LYLE A. BAKER
Medical Corps, Army of the United States

During recent months we have had occasion to reexamine a large number of World War II veterans who had been discharged from the armed services because of diagnoses referable to the cardiovascular system. As this work continued, certain questions presented themselves which prompted us to analyze a consecutive series of such cases. The results of this analysis are recorded as follows:

SOURCE OF MATERIAL

The material used in this study was procured from the medical records and examinations of 500 veterans of World War II who were discharged from service because of disability due to heart disease or hypertension. In every case studied the induction examination report was available. In those cases discharged by the Army the complete hospital charts and other pertinent medical records were available. In the cases discharged from the Navy, either photostatic copies of the medical records or a medical summary was in the case file. All of this information was carefully reviewed by us and found to be extremely valuable in the study.

In addition, each veteran was examined by one or both of us. A careful history was taken, complete physical examination was done and, routinely, chest x-ray, electrocardiogram, blood Wassermann and urinalysis were obtained. Other laboratory work was done when indicated.

Nearly all of these persons came to us for examination as a result of their having applied to the Veterans Administration for compensation because of disability alleged to have been incurred in military service. With few exceptions, these cases were studied in our outpatient department.

GENERAL INFORMATION

The material studied consisted of 500 individuals, physically disqualified for duty because of heart disease or hypertension. Under heart disease we have included neurocirculatory asthenia and other disturbances of a functional character, as well as organic disease.

Only a few of these veterans were sufficiently ill to be hospitalized at the time of examination. For the most part they were in a reasonably good state of health with either mild or no subjective symptoms. There was only one woman among the 500. Fifty-two Negroes were in the group. Nearly all of these veterans had entered service from homes in northern Illinois, most of them from the vicinity of Chicago. The majority had been reared in the same area.

The average age of the entire group at the time of our examination was 29.1 years. The youngest age recorded was 19, and the oldest veteran was 53 years of age. The great majority were in the third decade. In table 1 the average age of the various etiologic groups is recorded.

The average time spent in service, from date of induction to date of discharge for disability, was 12.4 months for the entire group. It is evident (table 1) that there was no great difference in the average time spent in service as far as etiology is concerned. The shortest service, 10.6 months, was found in cases of congenital heart disease. The group with arterial hypertension had the longest period of service, 14.1 months.

The grouping of these cases in table 1, with reference to the type of disease present, is based on the diagnosis made at our examination. In some cases this diagnosis differed with that made at the time of discharge. Since neither the Army nor the Navy consistently followed the nomenclature of the American Heart Association, as we did, some academic revisions in diagnosis were necessary. Those cases in which our opinion differed with the certificate of disability discharge diagnosis will be discussed in detail later.

As would be anticipated in persons of this age group, rheumatic heart disease predominated. Of the 389 persons who had cardiovascular disease, 169 (43.4 per cent) had this type of heart disease. Arterial hypertension was the next most frequent diagnosis made, occurring in 86 (27.5 per cent) of the patients with cardiovascular disease. Other types of heart disease occurred less frequently. Coronary heart disease, however, occurred in a rather large proportion, considering the age of the group. The different etiologic groups will be discussed under their respective headings.

RHEUMATIC HEART DISEASE

There was a total of 169 persons having the rheumatic type of heart disease. The average age was 27 years and the average period of service was 12.7 months. In table 2 there is shown the incidence of the various anatomic lesions. The correlation of these lesions with the history of rheumatic fever and the time of its occurrence in relation to military service are also shown.

There were 6 patients who presented evidence other than valvular lesions on which the diagnosis was based. Five of these had abnormal electrocardiograms, 2 showing intraventricular block. One man had a history and findings indicating that he had the residuals of rheumatic pericarditis. Evidence justified the diagnosis of rheumatic carditis in these patients.

Of the 162 persons found to have valvular heart disease, the mitral valve was involved in 140 (82.6 per cent) and the aortic valve in 69 (40.8 per cent).

The criteria for the diagnosis of mitral insufficiency due to valvulitis are not very clearly defined. However, in this analysis we have adhered to the following requirements: All murmurs were of 2 plus or of greater intensity in accordance with Levine's classification. They were constantly present, tended to be harsh and varied in no significant detail on the usual maneuvers. A definite rheumatic history was required in all cases. When an aortic valvular lesion was present we required the apical murmur to be louder and more

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harsh in quality than in the case of mitral valve involvement alone. We did not consider mitral insufficiency associated with mitral stenosis of sufficient clinical significance to warrant analysis.

There were 60 instances of organic mitral insufficiency without associated stenosis. In 15 of these there was associated disease of the aortic valve. In 45 (31.50 per cent) veterans there was isolated mitral insufficiency. This is approximately the same incidence as that found in selectees disqualified because of heart disease.[1] Schlesinger [2] reported a similar incidence in a follow-up on children who had suffered from rheumatic fever. All of these veterans on examination were in good health, showing no evidence of active rheumatic fever or of cardiac symptoms. The routine x-ray study of the chest revealed evidence of cardiac enlargement in 18 (30 per cent) of the 45 cases. The electrocardiogram was abnormal in 17 (28.3 per cent) cases. In 3 there was arrhythmia, 3 showed conduction defects and in 11 there was a suggestive degree of axis deviation.

Mitral stenosis was present in 80 of the 169 veterans who had rheumatic heart disease, an incidence of 47.3 per cent. In 48 (29.6 per cent) the mitral valve alone was involved, while in 32 (19.7 per cent) mitral stenosis was associated with aortic valve disease. there were 138 (80.4 per cent) in which there was a definite history of rheumatic fever. The average age at which the first attack occurred was 17 years. We were greatly aided in obtaining a history of rheumatic fever by the medical records which had been accumulated during service. In many instances the past medical history had been recorded in detail on several occasions, thereby revealing evidence of past rheumatic fever which would have been otherwise undisclosed.

The significance of the time of occurrence of the rheumatic fever as related to the period of military service is obviously important. Table 2 shows those who gave a history of rheumatic fever before entering service, those who had the initial attack while in service and those who gave a history of rheumatic fever both before and during service. Of the 169 veterans who had rheumatic heart disease, 86 (50.3 per cent) had had rheumatic fever before entering military service. The number of attacks had varied from one to ten in these people. Physicians had informed some that they had heart disease. In 40 of these men there was a recurrence of acute rheumatic fever during service. There were 52 (30.7 per cent) veterans who denied a history of rheumatic fever prior to that which occurred in service. There were 31 (18.3 per cent) who gave no definite history of rheumatic fever at any time. All

TABLE 1.—*Etiologic Classification of 500 Cases*

Correlation of Average Age and Time in Service, with Etiology

	Type of Heart Disease									
	Rheumatic	Hypertensive	Coronary	Congenital	Miscellaneous	Undetermined	Functional	Hypertension Arterial	No Cardiovascular Disease	Total
Number of cases	169 33.8%	21 4.2%	33 6.6%	7 1.4%	3 0.60%	46 9.2%	24 4.8%	86 17.2%	111 22.2%	500 100%
Average age, years	27	33	40.7	25	40	29.1	27.5	30.6	27.7	29.1
Average number of months in service	12.7	13.0	13.3	10.6	12.5	11.9	12.4	14.1	10.9	12.4

Among those patients in whom only the mitral valve was involved, the x-ray of the chest revealed an abnormal cardiac shadow in 18. The electrocardiogram was abnormal in 23 of the patients. Auricular fibrillation was present in 1, conduction defects in 7, right axis deviation in 9 and nonspecific abnormalities in 6.

The aortic valve was involved alone in 22 (13 per cent) of the cases. Aortic insufficiency was present in all, while in 1 case there was also stenosis of the valve. The electrocardiogram was abnormal in 8 of these 22 cases. There was abnormal left axis deviation in 4, conduction defects in 2 and nonspecific abnormalities in 2. The chest x-ray showed cardiac enlargement in 5 of the 22 cases.

Combined involvement of the aortic and mitral valves was present in 47 (27.8 per cent) of the cases. Aortic valve disease was combined with mitral stenosis 32 times and with mitral insufficiency 15 times. Aortic insufficiency was present in all, while aortic stenosis was present in 6 of those with mitral stenosis and in 1 with mitral insufficiency. Cardiac enlargement was present on x-ray examination in 28 of the 47 cases. The electrocardiograms were abnormal in 15 cases. Abnormal axis deviation was found in 10, conduction defect in 1 and nonspecific changes in 4.

The information relative to the rheumatic history of this group is of particular interest. Of the 169 cases of the latter group showed evidence of either stenotic valve lesions or aortic insufficiency. We did not classify apical systolic murmurs, in the absence of a rheumatic history, as rheumatic heart disease.

TABLE 2.—*Rheumatic Heart Disease*

Type of Cardiac Lesion Correlated with Rheumatic History as Related to Period of Military Service

Basis of Diagnosis Cardiac Lesion	Number of Cases	Rheumatic History			
		Before Service	In Service	Before and In Service	Negative
Valvular					
Mitral insufficiency	45	11	20	14	0
Mitral stenosis	48	19	9	10	10
Aortic stenosis and insufficiency	1	1	0	0	0
Aortic insufficiency	21	8	5	1	7
Combined aortic and mitral lesions	47	7	12	14	14
Nonvalvular					
Rheumatic myocarditis	3	0	2	1	0
Rheumatic intraventricular block	3	0	3	0	0
Rheumatic pericarditis	1	0	1	0	0
Total	169	46	52	40	31

If attention is confined to the 138 persons who had rheumatic fever, certain important facts are evident. The initial attack of rheumatic fever occurred prior to service in 86 cases (62.3 per cent). In 40 (46.5 per cent) of these there was a recurrence during military

1. Markson, D. E., and Gethner, M. P.: Analysis of Cardiac Abnormalities in 460 Selectees, Illinois M. J. **82**: 350-354 (Nov.) 1942.
2. Schlesinger, B. E.: Public Health Aspects of Heart Disease in Childhood, Lancet **1**: 593-594 (March 12), 649-654 (March 19) 1938.

service. It is likewise evident that of the 92 veterans who had rheumatic fever in service 40 (43.4 per cent) had suffered attacks prior to entering service.

Evidence indicates that there is a high rate of recurrence during military service among those who have had rheumatic fever. Holbrook and van Ravenswaay [3] recently reported that in a study of rheumatic fever occurring among Air Corps troops there was a previous history of rheumatic fever in 34 per cent of the patients. Wright [4] noted a history of previous rheumatic fever in 18 of 28 soldiers suffering from the disease. These figures indicate a recurrence rate higher than that reported by Wilson and Lubschez [5] for the civilian population. Massell and Jones [6] estimate that about 2 per cent of young persons of military age have had rheumatic fever. On this basis one could predict that nearly 1 per cent of all inductees might develop a recurrence of rheumatic fever in service unless such persons were eliminated because of the rheumatic history.

It is obvious that rheumatic heart disease was the major cause for disability among the 500 veterans. It is likewise apparent that in spite of careful examination a considerable number of men were inducted into service who had rheumatic valvular disease. Bland, Jones and White [7] have shown that clinical evidence of mitral stenosis rarely develops in less than three years after the onset of rheumatic fever. Aortic stenosis probably develops even more slowly. It seems reasonable to conclude that all of these veterans who had stenotic valvular lesions on discharge had definite valvular disease on induction. Delaney and his associates [8] have commented on the discovery of chronic valvular disease among air cadets who had passed from two to twelve physical examinations. It is apparent that greater care must be taken in the examination of inductees if rheumatic valvular disease is not to be overlooked.

HYPERTENSIVE HEART DISEASE

There were 21 cases classified under the heading of hypertensive heart disease. The criteria for the diagnosis was based on x-ray evidence of cardiac enlargement with hypertension or a definite history of hypertension. There was no evidence of valvular disease or any other factor to which cardiac enlargement could be attributed. As noted in table 1, the average age of this group was 33 years, six years older than the rheumatic group. The average time spent in military service was thirteen months, almost the same amount of time spent by those with rheumatic heart disease. As a whole the group was in an excellent state of compensation. Only 1 had had symptoms of early left ventricular failure while in service. At the time of our examination none of the group showed evidence of heart failure. The only abnormal physical finding was evidence of cardiac enlargement by x-ray in all cases. The electrocardiogram was abnormal in 8 patients. Six of these showed evidence of left ventricular strain, 1 delayed auriculoventricular conduction, and 1 showed an undetermined type of intraventricular block. The blood pressure was abnormally elevated in all of these persons at the time of our examination.

The records of these patients were carefully reviewed for evidence of cardiovascular disease at the time of, or prior to, induction. A history of hypertension prior to entry into service was obtained in 12 (57.1 per cent) of the group. No blood pressure was recorded at the time of induction in 2 (1 had been taking digitalis for some time). In the remaining 10 the blood pressure was normal in 2 (under 140/85) and "borderline" (under 150/90) in 8. There were 9 veterans who gave no history of hypertension prior to service. In 5 of these no induction blood pressure was recorded. In the remaining 4 the blood pressure was borderline in 3 and normal in 1. Among the 21 veterans a blood pressure under 140/85 was recorded on induction in only 3, no blood pressure was recorded in 7, and borderline blood pressure was noted in 11 of the group. We realize that the upper level of normal blood pressure used is somewhat more restrictive than that designated by Mobilization Standards (150/90).

The certificate of disability discharge diagnosis was arterial hypertension in 16 of these cases, hypertensive heart disease in 2, aortitis in 1 (Wassermann reaction negative), hypertension with aortic insufficiency in 1 and myocardial fibrosis in 1.

CORONARY HEART DISEASE

There were 33 veterans discharged because of coronary disease. The average age of this group was 40.7 years, which is considerably higher than that of the other etiologic groups. The youngest veteran, who was 25, had typical effort angina with definite electrocardiographic changes after exercise. There were 2 patients who suffered acute myocardial infarction at the age of 30. Acute myocardial infarction occurred in 6 patients under 35 years of age. The average time spent in service was 13.3 months.

The clinical manifestations were as follows: There were 21 patients who suffered classic acute myocardial infarction in service. Of these 21 cases only 4 gave a history indicating heart disease prior to service. Two had had typical effort angina of mild degree. One veteran gave a history of acute anterior infarction in 1940; however, he had withheld this information at the time of induction. The other veteran had given a suggestive anginal history, and an induction electrocardiogram showed a definite Q_3 and inverted T_3. This, apparently, was not considered significant and the man was inducted. The remaining 17 men had no history suggesting heart disease. A review of the electrocardiograms, taken at the time of the acute episode in service, showed the location of the infarcts to be anterior in 8, posterior in 12 and unclassified in 1. At the time of our examination the electrocardiograms still showed residuals of infarction in 16, intraventricular block in 1, and in 4 the tracing had returned to normal. The x-ray examination of the chest revealed enlargement of the heart in 6 and arteriosclerotic plaques in the aorta in 1. The remaining 14 were normal.

There were 10 persons who manifested angina pectoris without evidence of infarction. On close questioning, 3 of these men admitted the existence of the symptoms prior to service. There was abnormality of the electrocardiogram in 4 cases, and the x-ray of the heart showed enlargement in 3 of these patients.

3. Holbrook, W. O., and van Ravenswaay, A. C.: The Military Aspects of Acute Rheumatic Fever, Mil. Surgeon **96**: 388-391, 1945.
4. Wright, I. S.: Cardiovascular Highlights of the War, Bull. Chicago Heart A. **23**: 1-8, 1945.
5. Wilson, May G., and Lubschez, Rose: Recurrence in Rheumatic Fever, J. A. M. A. **126**: 477-480 (Oct. 21) 1944.
6. Massell, B. F., and Jones, T. D.: Some Practical Aspects of the Rheumatic Fever Problem Which Have an Important Bearing in Military Medicine, Am. Heart J. **27**: 575-587 (April) 1944.
7. Bland, E. F.; White, P. D., and Jones, T. D.: Development of Mitral Stenosis in Young People, Am. Heart J. **10**: 995-1004 (Dec.) 1935.
8. Delaney, J. H.; Miller, S. J.; Kimbro, R. W., and Bishop, L. F.: Valvular Heart Disease Previously Unrecognized in Military Service, J. A. M. A. **123**: 884-886 (Dec. 4) 1943.

The remaining 2 veterans were diagnosed as having coronary heart disease on the basis of having abnormal electrocardiograms and being in the fifth decade of life. They stated that there were no symptoms, and all findings were otherwise normal.

As judged by this series of cases, it seems that the elimination of such persons at the time of induction is very difficult. Only 7 of the 33 gave a history indicating heart disease. The examiner is dependent on the accuracy of the history given, and more careful attento this point might have eliminated a few. Electrocardiograms would have given evidence in some of these men.

CONGENITAL CARDIOVASCULAR DISEASE

There were only 7 of these 500 veterans who had congenital cardiovascular disease. This is an incidence of only 1.4 per cent, which is much lower than that found in inductees. In the examination of inductees Levy, Stroud and White [9] found 4.4 per cent, while Wilburne and Ciccolini [10] found 12.2 per cent had congenital cardiovascular lesions. Porter [11] found an incidence of congenital heart disease of only 1.6 per cent among patients with all types of cardiovascular disease in a large army hospital, which is approximately the same as the 1.4 per cent noted in this series. A comparison of these figures would indicate that nearly all congenital heart disease is eliminated at the time of the induction examination. The fact that nearly all congenital heart lesions are associated with loud murmurs probably accounts for this fact.

The congenital lesions found among these 7 persons were as follows: Three had coarctation of the aorta, 2 had patent ductus arteriosus, 1 had a right aortic arch and 1 had severe congenital deformity of the chest leading to pulmonary hypertension and cor pulmonale. The average age was 25 years and they spent an average of 10.6 months in service. Two of the patients with coarctation of the aorta had a history of hypertension, and 1 patient with a patent ductus arteriosus knew he had a heart murmur before entering military service. The patient with congenital deformity of the chest had had a low effort tolerance all of his life, and this had become much more apparent during service. At the time of our examination he had increased venous pressure and was obviously quite disabled.

These results would indicate that few people with congenital cardiovascular disease are inducted into military service and that it is an unimportant cause of disability discharge.

HEART DISEASE OF MISCELLANEOUS ETIOLOGY

Three persons are grouped here because the small number does not justify separate classifications. Two of them were discharged because of myocarditis: 1 following diphtheria, and the other one associated with bacteremia. In both instances the electrocardiograms were abnormal and we concurred in the diagnosis of infectious myocarditis. There was 1 patient with cardiovascular syphilis. This man had symptoms of coronary insufficiency with x-ray evidence of aortic dilatation and an abnormal electrocardiogram. He gave a history of a penile lesion in 1927 with some antisyphilitic therapy. The blood Kahn reaction was positive.

HEART DISEASE OF UNDETERMINED ETIOLOGY

Among the 500 veterans studied there were 46 instances in which the heart was found to be abnormal but no definite etiologic factor could be established. The past medical history disclosed no cause, and the physical findings and laboratory work disclosed nothing of a specific character which would indicate the etiology. The average age of the group was 29.1 years. The average time spent in service for this group of veterans was 11.9 months. These cases can well be divided in accordance with the type of abnormality which served as the principal basis for a diagnosis of heart disease.

There were 21 individuals who presented systolic murmurs of such a character as to be considered abnormal. All of these murmurs were so located as to indicate that they were of mitral origin and of 3 plus or greater intensity. They were constantly present, irrespective of position, respiration or exercise, and continued through all or the greater part of systole. Some were harsh in quality, while others were soft and blowing. In most instances the murmur was the only abnormal cardiovascular finding. There was one abnormal electrocardiogram showing a prolonged PR interval, and in 4 cases the x-rays of the chest indicated slight cardiac enlargement. At no time had there been any significant cardiac symptoms in any of these veterans. Seven of the 21 had knowledge of the presence of a murmur before entering service. Two of these had been previously rejected because of this physical finding.

It seems that some authors who studied persons of a similar age group have classified such cases under rheumatic heart disease. The discharge diagnosis in all of these cases was chronic valvular heart disease. While it is reasonable to assume that rheumatic valvulitis is a common cause for such murmurs, our experience has not led us to believe that we can determine the physical condition of the mitral valve with any great assurance from the interpretation of a systolic murmur alone. A similar experience was reported by Rednick.[12] In a series of cases studied at postmortem he was unable to find any anatomic explanation for 22 per cent of the systolic murmurs heard during life. In the absence of any history of rheumatic fever or other concrete evidence of causation we have conservatively classified these murmurs as of undetermined etiology. A good many were undoubtedly rheumatic in origin, while some were possibly functional in character. It was obvious that these men had been discharged because of the abnormal auscultatory finding rather than because of physical disability.

There were 19 in whom the diagnosis of heart disease was primarily based on an abnormal electrocardiogram. In 8 there existed bundle branch block, one being of the short PR interval type. In 2 there was a prolonged PR interval of 0.25 second. In the remaining 9 there were T wave abnormalities of nonspecific type. Cardiac enlargement by x-ray was present in only 1 of these veterans. In 7 of these 19 cases there existed, prior to service, a history of symptoms or medical opinion which was strongly indicative of heart disease. It seems that coronary disease was probably present in some, while rheumatic involvement may have been present in others; however, a definite etiology could not be established.

The principal manifestation in 4 of this group was paroxysmal attacks of tachycardia. Two had episodes of auricular fibrillation, 1 had paroxysmal ventricular

9. Levy, R. L.; Stroud, W. D., and White, P. D.: Report of Reexamination of 4,994 Men Disqualified for General Military Service Because of a Diagnosis of Cardiovascular Defects, J. A. M. A. **123:** 937-944 (Dec. 11), 1029-1035 (Dec. 18) 1943.

10. Wilburne, Morris, and Ciccolini, E. M.: Heart Disease in Selective Service Examinees, Am. J. M. Sc. **207:** 204-208 (Feb.) 1944.

11. Porter, R. R.: Cardiovascular Experiences in an Army General Hospital, Am. Heart J. **27:** 559-564 (April) 1944.

12. Rednick, M. S.: Pathological Study of the Significance of Systolic Murmurs, Ann. Int. Med. **16:** 1197-1205 (June) 1942.

tachycardia and 1 had episodes of frequently recurring multifocal premature ventricular beats. The 2 patients who manifested paroxysmal auricular fibrillation had enlargement of the heart by x-ray examination. Only 1 gave a history of cardiac symptoms prior to service, having had episodes of auricular fibrillation.

Two were found to have unexplained cardiac enlargement. One had been discharged with the diagnosis of hypertensive heart disease, but there were no abnormal blood pressure recordings in the record or at our examination. The other had a certificate of disability discharge diagnosis of neurocirculatory asthenia.

FUNCTIONAL HEART DISEASE

Under the heading of functional heart disease we have grouped those cases which had some type of cardiac disturbance which was considered not organic in nature, including neurocirculatory asthenia. There were 24 veterans (4.8 per cent) of the entire series who presented such disorders. The average age of these men was 27.5 years, and the average time spent in service was 12.4 months.

There were 12 men who had cardiac arrhythmias. In 7 the arrhythmia was paroxysmal auricular tachycardia. There were 3 with paroxysmal auricular fibrillation and 2 with ventricular premature contractions. In all of these cases the diagnosis had been sustained by electrocardiograms taken during the time the arrhythmia was present. Six of these veterans gave a clear history of the occurrence of the arrhythmia prior to service. There were no other abnormal cardiovascular findings in any of these cases and there were no symptoms other than those resulting from the disturbed rhythm.

The diagnosis of neurocirculatory asthenia was made in only 12 of 500 cases, an incidence of 2.4 per cent, which is surprisingly low. However, the incidence of this condition found in inductees rejected for heart disease has been comparatively low. It was noted in 4.9 per cent of 4,994 rejectees by one group of examiners,[9] and in 1 per cent of another series of rejectees.[10] Of the 12 persons, 9 had been discharged because of neurocirculatory asthenia. The remaining 3 had been discharged with a diagnosis of organic heart disease which we did not find present. Seven of these 12 persons gave a history of similar symptoms prior to service.

ARTERIAL HYPERTENSION

There were 86 veterans who were found to have hypertension. This comprised 17.2 per cent of the 500 cases. The average age of the group was 30.6 years at the time of our examination, with an average of 14.1 months spent in military service. This is the longest average period of service of any of the groups.

Hypertension was considered to begin at a systolic pressure over 150 mm. of mercury or a diastolic pressure over 90 mm. of mercury. We classified systolic pressures between 140 and 150 and diastolic between 85 and 90 as "borderline."

As might be expected, the degree of hypertension found in these veterans was either mild or moderate. Only 1 patient had a blood pressure over 200 systolic and 110 diastolic. In the majority the systolic pressure ranged between 150 and 165 and the diastolic between 90 and 105 mm. of mercury.

While some of these men came to the attention of the medical officers because of routine physical examinations or while under treatment for an unrelated condition, a surprising number reported to sick call because of symptoms. There were 58 who consulted the doctors because of feeling ill, and hypertension was thus discovered. The most frequent symptoms complained of were headache, palpitation, fatigue and nervousness; less frequently precordial distress was a complaint. These subjective complaints were more generally present in this group of veterans than is usually noted in civilians with a similar degree of hypertension. It hardly seems probable that the hypertension was the direct cause of the symptoms but more likely that the psychologic makeup of these persons rendered them less adaptable to military service. Psychic conflicts, and anxiety resulting therefrom, might well cause such symptoms.

The discharge diagnosis was arterial hypertension in all but 5 of these persons. One had been discharged for rheumatic myocarditis and 1 for valvular heart disease. The diagnosis in both cases was presumably based on an apical systolic murmur, since there was no history of rheumatic fever in either case. There were 3 who were given a certificate of disability discharge on neurocirculatory asthenia.

With reference to evidence of hypertension prior to service, there were 36 (41.8 per cent) who gave a history of hypertension. In 14 of these no blood pressure was recorded on the induction examination. The blood pressure was "borderline" in 16 and below 140/85 in 6. Among the 50 men who had no history of hypertension the blood pressure was not recorded on induction in 23, it was "borderline" in 11 and it was under 140/85 in 16.

The high incidence of a previous history of hypertension in Navy men who were found to have high blood pressure has been commented on by Master.[13] Traum and Wilcox [14] found that 44 per cent of a small number of men discharged for hypertension gave a previous history of this condition. This corresponds well to the 41.8 per cent noted in this series. It is apparent that the past history of hypertension and the induction blood pressure deserve serious attention when judged by these persons discharged for hypertension.

CHANGES IN DIAGNOSIS RESULTING FROM REEXAMINATION

Reexamination of these 500 veterans led us to differ, in a considerable number, with the diagnosis on which disability discharge had been based. In table 3 we have indicated how the cases under the various certificate of disability discharge diagnoses were reclassified at the time of reexamination. It is apparent that in some veterans having heart disease there was a difference of opinion as to the type of disease present. Such disagreement is largely academic from the point of view of fitness for military service and is of little concern.

The most important difference of opinion was in a group of 111 cases in which we were unable to confirm the diagnosis of cardiovascular disease. For discussion, these cases can be grouped in accordance with the certificate of disability discharge diagnosis so that certain facts may be better emphasized.

The most common unconfirmed certificate of disability discharge diagnosis was that of valvular heart disease. Forty of the 111 veterans were discharged with this diagnosis. Twenty-six of these had suffered

13. Master, A. M.: Hypertension in the Navy, Bull. New York Acad. Med. **19**: 704-712 (Oct.) 1943.
14. Traum, A. H., and Wilcox, B. B.: An Analysis of 150 Cases of Cardiovascular Disease in World War II Veterans, Mil. Surgeon **95**: 5-10 (July) 1944.

from acute rheumatic fever in service and were discharged shortly thereafter. On reexamination we found that 23 of these men had faint (1 plus) apical systolic murmurs and 3 had no abnormal findings. In 14 of these 40 veterans there was no history of any etiologic factor. Systolic murmurs were present in all. In 3 men they were of 2 plus intensity, and in 11 the murmur was of less than 2 plus intensity. X-ray and electrocardiographic studies were normal in all of the 40 cases. All were in good health and had no cardiac symptoms.

At the time of our examination we did not believe that there was sufficient evidence to sustain a definite diagnosis of heart disease. Those with a rheumatic history were considered as "possible" rheumatic heart disease, and the diagnosis was recorded as "systolic murmur with history of rheumatic fever." The murmurs noted in the 14 without a history of rheumatic fever were classified as physiologic and not indicative of heart disease.

It seems that several factors may have played a part in this change of diagnosis. The use of the diagnosis change in the policy of the Air Corps toward rheumatic fever and slight or questionable evidence of rheumatic heart disease. They report that separation from service has dropped from 85 per cent to 25 per cent. It is probable that a similar change of policy was reflected throughout the armed forces. Since these men were discharged during the early months of the war, when the attitude toward rheumatic fever or any suggestion of rheumatic heart disease was quite intolerant, it is likely that diagnosis and disposition were considerably influenced by this prevailing attitude.

Reports in the literature concerning the follow-up of similar cases indicate that a comparatively small percentage of these persons will eventually develop definite rheumatic valvular disease. Boone and Levine,[16] in a ten year follow-up, found that only 4.8 per cent developed valvular heart disease, while Ash,[17] in a similar study of children, reported that only 18 per cent developed valvular disease. These findings justify the conservative diagnosis made in this group of cases at this time. Interval examinations in the future will be necessary to determine the outcome in each case.

TABLE 3.—*Comparison of Certificate of Disability Discharge Diagnosis with Diagnosis Made on Reexamination*

Diagnosis on Reexamination	C. D. D. Diagnosis: Valvular Heart Disease	Neurocirculatory Asthenia	Arterial Hypertension	Congenital Heart Disease	Heart Disease, Unstated Etiology	Arrhythmia	Coronary Heart Disease	Hypertensive Heart Disease	Aortitis	Rheumatic Carditis	Total
Rheumatic heart disease...	109	..	...	..	..	..	..	..	..	..	109
Hypertensive heart disease	...	..	18	..	1	..	..	1	1	..	21
Coronary heart disease....	...	..	...	..	2	..	31	..	..	..	33
Congenital heart disease..	2	..	...	5	..	..	..	..	..	..	7
Miscellaneous heart disease	...	..	...	..	3	..	..	..	..	..	3
Undetermined etiology....	23	1	1	..	19	4	..	..	..	..	46
Functional heart disease..	...	1*† 9†‡	...	..	1‡	11	2‡	..	..	..	12*† 12‡24
Arterial hypertension.....	2	3	81	..	..	..	..	..	..	..	86
No cardiovascular disease.	40	28	26	1	4	3	1	..	..	8	111
Total.....	234	42	126	6	30	18	34	1	1	8	500

* Arrhythmias. † Neurocirculatory asthenia.

of "valvular heart disease," while it implies anatomic changes, does not place the examiner under such strict responsibility for determining the etiology or character of these changes as does the nomenclature of the American Heart Association. Since we followed that nomenclature, it is probable that some inconsistency resulted because of the difference in terminology used.

There was also evidence that the character of the systolic murmur had actually changed, in the interval since discharge, in some of the persons who had had acute rheumatic fever during service. A comparison of the description of the murmurs at the time of discharge with our findings indicated that the murmurs had decreased in intensity or had even disappeared in some cases. How often this occurred we cannot be certain, since the relative intensity of the murmurs had not been described in all patients. It is a well recognized fact that relatively loud systolic murmurs occurring during the course of rheumatic fever may later show appreciable regression or disappear.[15] Since, on the average, reexamination took place nearly a year after discharge, this was probably not an uncommon cause for change in diagnosis.

Furthermore, Holbrook and van Ravenswaay [3] recently indicated that there has been a considerable

There were 8 veterans who suffered acute rheumatic fever in service, during which time they developed definitely abnormal electrocardiograms. They were discharged because of rheumatic carditis. At reexamination the electrocardiograms were all normal. Four had 1 plus apical systolic murmurs. All 8 cases were classified as "possible" rheumatic heart disease. Improvement in the clinical findings was clearly the reason for lack of conformity with the certificate of disability discharge diagnosis.

Neurocirculatory asthenia was the second most frequently unsustained discharge diagnosis. Forty-two of the 500 veterans were separated from service on the basis of this disability. At the time of reexamination the diagnosis was sustained in 9 of these men, 4 others were found to have organic cardiovascular disease, and 1 was classified as having paroxysmal auricular tachycardia. In the remaining 28 veterans we were unable to sustain the diagnosis of cardiovascular disease. Two factors would seem to be responsible for this disagreement in diagnosis.

A difference in diagnostic criteria was the cause in some cases. Though much has been written concerning this entity, the criteria for diagnosis are still rather

15. Keith, J. D.: Prognosis in Rheumatic Heart Disease, Canad. M. A. J. **45**: 119-127 (Aug.) 1941. Brown, M. G., and Wolff, Louis: Recovery from Acute Rheumatic Fever Without Permanent Cardiac Damage, New England J. Med. **223**: 242-243 (Aug. 15) 1940. Ash.[17]

16. Boone, J. A., and Levine, S. A.: Prognosis in Potential Rheumatic Heart Disease and Rheumatic Mitral Insufficiency, Am. J. M. Sc. **195**: 764-770 (June) 1938.

17. Ash, Rachel: Cardiac Signs in Rheumatic Infection of Childhood, Am. J. Dis. Child. **63**: 1-14 (Jan.) 1942.

indefinite. There are those who will establish the diagnosis almost entirely on subjective complaints; others require definite objective evidence of neurocirculatory instability such as erratic heart rate, unstable blood pressure, sweating, unusual flushing or pallor, and tremor. We agree with the latter criteria for diagnosis. Those people who had only subjective complaints were thought to be undistinguishable from the "neurosis" and so were referred to the psychiatrist for diagnosis. This difference in point of view was responsible for failure to sustain a diagnosis of neurocirculatory asthenia in a few cases.

The more important factor responsible for our failure to concur in the diagnosis was a change in the symptoms and physical findings of the veteran from those described at the time of discharge. It is generally agreed that an inherent predisposition plus environmental factors are necessary to precipitate the neurocirculatory asthenia syndrome. Military service during time of war furnishes the most ideal environment. However, if such an individual is discharged and returns to a familiar civilian environment, free from anxiety and military responsibility, it is reasonable to presume that symptoms and signs may recede so that the syndrome becomes clinically latent. This apparently occurred in most of these 28 veterans. At the time of reexamination there was not sufficient evidence on which a diagnosis could be based.

As judged by this series of cases it would appear that neurocirculatory asthenia is a much less frequent cause for separation from service in this war than it was during World War I. McCrudden and White [18] reported an incidence of 45 per cent, and Lewis [19] noted an even higher incidence during the war. These figures are extremely high when compared with the separation incidence of 8.4 per cent in this series. It seems likely, however, that many such cases are being classified under neuropsychiatric diagnoses, such as "battle fatigue," "anxiety states" or neurasthenia, during the present war. We are in agreement with a policy of diverting the diagnostic terminology away from the cardiovascular system.

There were 26 veterans who were discharged because of arterial hypertension whose blood pressure was under 150/90 mm. of mercury at the time of our examination. Seven of these gave a history of abnormal blood pressure before entering service. A review of the induction examinations showed the blood pressure recorded under 140/85 in 9, "borderline," under 150/90, in 7, and no blood pressure recorded in 10. As would be expected, the blood pressure readings recorded during service revealed only mild elevation. A diastolic pressure of 100 or over was recorded in only 10 cases. The highest systolic pressure recorded was 176 and the highest diastolic pressure was 112. Many cases showed wide fluctuations in pressure from normal to abnormal. Only 13 of the group had symptoms at the time of discharge. These symptoms were headache, nervousness, palpitation and breathlessness. One patient had been troubled by epistaxis. All were in good health at the time of reexamination and only a few had mild symptoms, as already recorded.

Blood pressure has been found to present a very difficult problem in determining physical fitness for military service. The difficulty is largely due to the frequency of the so-called "nervous hypertension" among young persons and the inadequate means of differentiating it from true essential hypertension. While essential hypertension usually begins with a period of fluctuating blood pressure, the incidence of the development of true hypertension during the next few years in people of this age group is probably very small. Levy and his associates [20] found an occurrence rate of 2.5 per thousand persons years under observation for army officers of approximately this same average age who had manifested transient hypertension. This figure gives support to those who believe that the attitude toward induction blood pressure should be rather liberal. However, this same liberal view will need to be adopted by both Army and Navy if frequent discharges for transient arterial hypertension are to be avoided.

A study of the records and the course of the blood pressure in these cases would indicate that for the most part they may be classed as "nervous hypertension." It is likely that military environment caused sufficient psychic stress to give rise to transient elevation in blood pressure. The symptoms complained of were strikingly similar to neurocirculatory asthenia. The similarity extended further in that return to civilian life relieved that psychic stress to such an extent that the blood pressure returned to normal.

Three patients discharged because of cardiac arrhythmia were placed in this group. Neither the medical records nor our findings revealed sufficient evidence of disturbed rhythm to classify the cases as abnormal.

There were 6 patients who were discharged because of organic disease in whom our examination revealed nothing abnormal. A review of the medical records did not reveal, in our opinion, sufficient basis for the diagnosis made at time of discharge. In only these 6 cases was there entire disagreement with the clinical findings and the certificate of disability discharge diagnosis.

Even though the certificate of disability discharge diagnosis of cardiovascular disease was unconfirmed in 111 of the 500 cases, it is important to note that an improvement in the condition of the patients made a change of diagnosis necessary in many cases. In the remainder of the cases there was little disagreement with clinical findings recorded at the time of discharge. Changes in diagnosis in these cases resulted from a difference in criteria used in clinical classification. In only a few cases was there complete clinical disagreement.

SUMMARY

A careful analysis of the records of 500 veterans discharged because of heart disease or hypertension has been made. Obviously the necessity of discharging persons from military service because of disability a year after induction involves a great loss of both time and money with regard to military training. In addition, the federal government is obligated to a future responsibility which is of no small concern. Any information which might prevent such incidents is therefore of great value.

Rheumatic heart disease was by far the most common type of cardiovascular disease noted among these veterans. A definite history of rheumatic fever prior to entrance into military service was present in 50.3 per

18. White, P. D.: The Soldier and His Heart, War Med. **1**: 158-167 (Feb.) 1941.

19. Lewis, Thomas: The Soldier's Heart and the Effort Syndrome, ed. 2, London, Shaw & Sons, 1940.

20. Levy, R. L.; Hillman, C. C.; Stroud, W. D., and White, P. D.: Transient Hypertension, J. A. M. A. **126**: 829-833 (Nov. 25) 1944.

cent of these cases. In 52 cases definite stenotic valve lesions were discovered two years or less following induction. Among those giving a negative history for rheumatic fever we know the valvular disease was not acquired during service, and therefore it must be concluded that it existed prior to induction. The tendency for rheumatic fever to recur during military service is also confirmed.

Arterial hypertension was the second most common cause of cardiovascular disease. Twenty-one of these persons were found to have hypertensive heart disease, and in 86 the hypertension was uncomplicated. There was a history of hypertension prior to induction in 44.8 per cent of all cases. It was recorded above 140/85 "borderline" in 35.5 per cent and under 140/85 in 23.3 per cent.

Coronary heart disease was relatively frequent considering the average age of the veterans. Approximately 4 per cent of all discharges were due to acute myocardial infarction.

Congenital and syphilitic cardiovascular diseases were rarely noted and were unimportant as a cause of disability discharge.

Difference of opinion regarding the significance of systolic murmurs proved to be the most common cause for a change in diagnosis. Some inconsistency was noted in that murmurs of a type usually considered acceptable for induction sometimes served as a basis for certificate of disability discharge disposition. This supports the policy of the Philadelphia board,[21] which was rejecting inductees with systolic murmurs not thought to be organic, considering the possibility of subsequent discharge on the basis of these murmurs.

In this series of cases neurocirculatory asthenia was a much less frequent cause for discharge than it was during World War I. This may be due to the fact that these patients are being classified under neuropsychiatric diagnoses.

There was a definite tendency for the signs of neurocirculatory asthenia and hypertension to disappear following return to civilian environment. This indicates that poor psychologic adjustment to military life was responsible for transient clinical manifestations.

The certificate of disability discharge diagnosis of cardiovascular disease was unconfirmed in 111 of the 500 cases. This was due, in the majority of instances, either to a change in the physical condition of the veteran or to a difference in the criteria and terminology used in classification.

A review of the medical records of these veterans disclosed that in approximately 40 per cent there was a history of an etiologic factor, symptoms referable to the heart or of abnormal physical findings which antedated their entry into service. More time devoted to the careful questioning of inductees with regard to these factors might have suggested the presence of cardiovascular disease. The routine referral of persons who had suggestive histories to physicians especially trained in cardiovascular diseases would have undoubtedly uncovered evidence of disease in many. We realize that some persons will withhold such facts, while others may fabricate information. However, it seems the additional time and expense required would have been insignificant compared to the time that has been lost and the expense the public will bear during the coming years.

21. Stroud, W. D.: Report of the Philadelphia Board, Am. Heart J. **27**: 484-492 (April) 1944.

ISOSPORA HOMINIS INFECTION IN MAN

COMMANDER ARTHUR A. HUMPHREY (MC), U.S.N.R.

Isospora hominis infection in man, sometimes termed human coccidiosis, is a rare and poorly understood disease, the pathogenicity of the organism even being open to some question. Despite the recognition of some 240 cases, the bulk of them occurring in World War I in the Mediterranean area, it has been possible to study very few from the clinical standpoint. Magath[1] in 1935, three years after he observed the first case in the United States, reviewed the literature thoroughly and photomicrographs reprinted from this paper in a readily available textbook[2] form an excellent basis for the recognition of the parasite.

The oocysts which are found in the stools are probably ingested as such in food and drink, and since closely allied coccidia are found in many animals these creatures doubtless serve as a reservoir. The ovoid, glassy cysts measure 18 to 33 microns in length and 12 to 16 in breadth. The capsule may be doubly refractile, although in certain of the organisms it appears as a single layered translucent shell, which may become distorted or wrinkled on standing or in fixed slide preparations. The poles of the ovoid may be smoothly rounded, or one may be bluntly rounded. In some instances the shell appears as if it had been bilaterally pinched near the polar ends. The rounded mass of granular protoplasm in the center is usually single when the stool is fresh and tends to fill the beam of the boatlike capsule, although if ovoid it has a long axis parallel with that of the cyst. Shortly after passage this divides into two sporoblasts, although this may readily occur even by the time the specimen is examined. On further standing the sporoblasts will increase to four or eight and the granular appearance will be replaced by vermiform, rodlike structures.

While there are no accurate data to substantiate it, the oocyst is described as invading the epithelial cells covering the mucosa of the small bowel. A small bottle-shaped abscess follows this penetration, and schizogony and sporogony are suspected of taking place with the formation of new oocysts, which are poured into the lumen of the bowel. These apparently lack invasive power, as the disease is briefly self limited, all symptoms ceasing spontaneously within a few days to a few weeks.

Many of the reported cases have been asymptomatic or have been associated with some concomitant disorder, such as ulcerative colitis,[3] and the symptoms could not be properly evaluated. Laboratory infection of an accidental nature has occurred in 1 reported instance,[4] which was followed by a mild diarrhea after an interval of six days and continued for five weeks until halted by treatment. While this case was more protracted than the usual one, which lasts only a few

The photomicrograph is presented through the courtesy of Lieut. (jg) H. A. Down (HC), U.S.N.R.

This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department.

1. Magath, T. B.: Coccidia of Man, Am. J. Trop. Med. **15**: 91-129 (March) 1935.
2. Todd, J. C., and Sanford, A. H.: Clinical Diagnosis by Laboratory Methods, ed. 10, Philadelphia, W. B. Saunders Company, 1943, p. 524.
3. Kiskaddon, R. M., and Renshaw, R. J. F.: Human Coccidiosis, J. A. M. A. **128**: 731 (July 7) 1945.
4. Connal (1922), quoted by Strong, R. P.: Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases, ed. 6, Philadelphia, Blakiston Company, 1942, vol. 1, pp. 456-458.

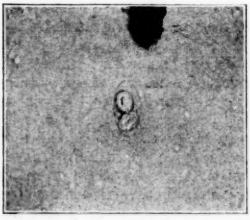
days to a week or two, it has assisted in estimating the incubation period. Other symptoms that have been reported are abdominal discomfort, flatulence, weight loss and lassitude.

The stools are usually described as being light in color, fatty and with an excess of undigested material. The isospora may be easily overlooked; because of their cellophane-like translucency they have been reported as remaining in the stool for only a few days, while other authors have continued to observe them for a month or more. A blood eosinophilia as high as 38 per cent has been recorded.[5]

These case reports are presented as it is felt that they add clinical support to the probable pathogenicity of the isospora when found in some individuals.

REPORT OF CASES

CASE 1.—A soldier aged 28 entered the hospital on July 1, 1945 complaining of discomfort in the right upper quadrant and intolerance to certain foods. These symptoms had been intermittently present since the fall of 1944, when he had severe pain in this area and a stone was removed and a cholecystectomy performed. The next serious attack occurred on June 22, 1945 while he was on Okinawa. The patient had no diarrhea but had suffered from constipation. He was afebrile, and further physical examination was essentially negative except for tenderness in the old operative site.



Appearance of Isospora hominis in case 2, illustrating division into two sporoblasts.

On entry the leukocytes numbered 8,500, of which 7 per cent (600 per cubic millimeter) were eosinophils. The gallbladder did not visualize with the dye, and the other x-ray studies of the gastrointestinal tract were negative. A gastric analysis was within normal limits. On July 10 the leukocytes numbered 14,800, with 6 per cent eosinophils (888 per cubic millimeter). Abdominal discomfort was still present. Stools examined on this date and on July 15 were normal but on July 16 Isospora hominis was found in small numbers in two successive stools. The patient at this time had just completed a course of tetrachlorethylene and caprokol directed against his unexplained eosinophilia. It was felt that some of the symptoms were due to postoperative adhesions. A few parasites were still present at the time of his evacuation on July 31, and further follow-up was not possible.

CASE 2.—A marine aged 31 entered the hospital on July 21, 1945, following his evacuation from Okinawa, with the diagnosis of acute myositis. A month before he had been forced to leap from a cliff to escape fire and injured his back, he was unable to move because of pain for some time and he also developed a urinary retention for five days. There were no x-ray findings. Improvement had been steady but slow, the pain in the lumbosacral area being persistent. He had arrived on Guam from the United States in the first week in April 1945 and was sent to Okinawa on the last of the month. The bulk of the men in his unit suffered from a brief diarrhea during the last week in May, but, while the others were affected for only a day or two, in his case the stools were frequent and watery for three weeks. In the first few days of the illness he vomited and had a mild fever (101 F.) with excessive perspiration. He did not observe any blood in the stools. He was confined to a field hospital part of this time, and some improvement followed the use of paregoric and a bismuth preparation. Army units obtained rectal cultures from his unit at the time of the outbreak without apparent result. A week or two prior to this episode they had killed and cooked a native goat, and although they ate some captured rations in addition to their own, all were tinned. The water supply came in part from a native spring, but halazone tablets had been added in such numbers that it was unpalatable. Following his arrival at this hospital he complained of a dull, gnawing pain in his abdomen, constipation and an unusual amount of flatus.

Physical examination was essentially negative except for evidence of weight loss and tenderness and spasm over the sacrolumbar area. He was afebrile during his hospital stay.

A leukocyte count of 7,900 on July 31 revealed 15 per cent eosinophils, the remainder of the differential count being essentially normal. A stool specimen examined on August 2 contained a number of Isospora hominis organisms and the stools continued to be heavily laden with them until his discharge to duty on August 7.

CASE 3.—A Marine aged 19 entered the hospital on July 3, 1945 with the diagnosis of paroxysmal tachycardia. In the past eight months he had experienced six typical attacks with characteristic symptoms and findings. In the interval he had had no complaint.

During his thirty-one months of overseas duty he had been in Samoa, the Hawaiian, Solomon and Marshall groups and lastly in Okinawa, from which he returned to Guam on July 13. One week after he arrived, on July 20, there was a sudden onset of a watery diarrhea and he felt feverish, although he did not turn into the sick bay. After three days of diarrhea it abated for a day following paregoric and then returned for two days. He did not observe any blood in the watery stools and felt only a mild malaise. Since that time he had had no gastrointestinal symptoms. No other man in his unit was affected at the time.

Physical examination was negative. The urine contained 5 leukocytes per high power field. X-ray examination of the heart and chest was negative. An electrocardiographic tracing demonstrated a sinus tachycardia with no permanent changes. On August 4 he had a hemoglobin of 85 per cent and a leukocyte count of 10,900. The differential count was segmented cells 54 per cent, lymphocytes 19 per cent, monocytes 15 per cent, and eosinophils 12 per cent (1,308 per cubic millimeter). On August 8 Isospora was found in numbers and this was repeated on the 9th. On August 11 a careful search failed to reveal any parasites. On August 15, the last day on which it was possible to follow the patient, a few parasites were still present.

COMMENT

If the salient symptoms of Isospora infection are diarrhea and abdominal pain or discomfort, 2 of the 3 cases show the former and all the latter symptoms. In the first case, however, the occurrence of abdominal discomfort as a manifestation of this infection must be viewed with caution, since his difficulty may be due to some residual affair following his cholecystectomy of the previous year. The fact remains, however, that his only recent severe episode occurred shortly after his arrival on Okinawa. Diarrhea is also a common symptom in the Western Pacific area, but it ordinarily affects a number of men in the same unit simultaneously. The third patient was the only one affected, and in case 2 the diarrhea continued for three weeks and was in no way similar to the transient illness affecting the others of his command. It is conceivable that, if the degree of severity is due to a quantitative effect, he merely might have ingested more oocysts than the others.

The diarrhea in the 2 cases so affected was described as watery, and blood was not present. One lasted five days and the other three weeks. The stools when examined in this hospital were normal except for the presence of Isospora, which was found in all of the cases repeatedly, and apparently for the first time. In 1 case they appeared intermittently. The longest period in which they were continuously found was fifteen days, at the end of which time the patient was discharged.

Taking a commonly accepted figure of 400 eosinophils per cubic millimeter as a significant level, all of the

5. Manson-Bahr, P.: The Dysenteric Disorders, Baltimore, Williams and Wilkins Company, 1943, pp. 267-268.

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cases showed an eosinophilia without other cause. In the 3 this varied from 7 per cent, with an absolute count of 600 cells, to 15 per cent, or 1,300 cells per cubic millimeter. It must be pointed out, however, that idiopathic eosinophilia, or so-called tropical eosinophilia, is common in the lower lattitudes and could have been present prior to the invasion of the parasites.

One patient, and perhaps another, had a fever early in the course of the disease. Two complained of a previously described symptom, flatulence. Leukocytosis was present in but 1 case and that was not present on arrival; it is considered that they were seen too late in the disease for any conclusion on this score.

It is of interest that the 3 patients had been on southern Okinawa within the same period of a few weeks, and, while they did not belong to the same unit, troop movements might have carried them in the same areas. Water was described as being well chlorinated, but it is questionable what degree of chlorination is required to destroy this parasite. Native vegetables might also have been a source of infection, as warnings as to their potential danger often went unheeded.

The Isospora parasites isolated from these patients failed to take any staining procedure, although following fixation by Schaudinn's fluid they were well delineated as light, glassy, ovoids against a dark hematoxylin stained background. Such preparations deteriorated in a few weeks. Dichromate or formaldehyde suspensions of the stool will keep for some time.

SUMMARY

Three cases of Isospora hominis infection in man have been studied in which no other intestinal parasite, or infection, was present to cloud the clinical picture. Abdominal discomfort was the symptom common to all, while a self-limited diarrhea occurred in 2 of the 3 cases.

The infection is apparently associated with a moderate, but definite, eosinophilia, which in the absence of other causative factors may support the contention that Isospora is pathogenic.

From the peregrinations of these patients, certain facts have been brought out in regard to the incubation period; it may be longer than previously suspected, or ten to twenty days. Oocysts were observed for as long a period as fifteen days during hospitalization and nine weeks after the onset of the illness.

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Concussion of the Spinal Cord. — Grossly, in a few instances the spinal cord immediately, or a few days after the blow, may be swollen at the level of the injury and possibly at one or two segments below or above the main lesion. The dura and pia-arachnoid are usually intact unless the dura is pierced, in which case they may show slight tears, be edematous and distended and contain slightly blood-tinged fluid. On sectioning, the cord may appear normal or show edema and small scattered hemorrhages. Thrombi and stasis in the blood vessels have been described. In severe cases of spinal concussion the outlines of the gray matter may disappear, and the cut surface has a pulp-like softened appearance. These pulp-like, necrotic areas, as in this instance, may occur at other regions than the impacted area. Cylindrical cavities of one to two millimeters in diameter or even larger may be noted. These occur mostly in the dorsal horns or in the posterior columns near the gray matter. These cavities may extend longitudinally upward and downward for two or three segments. They may be visible to the naked eye and are filled with grayish or brownish gelatinous material and may contain blood serum, histiocytes, compound granular corpuscles and less frequently red blood cells.—Davison, Charles: Pathology of the Spinal Cord as a Result of Trauma, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

Clinical Notes, Suggestions and New Instruments

BRAIN ABSCESS ASSOCIATED WITH CONGENITAL HEART DISEASE

Report of a Case with Complete Recovery

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and
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The association of brain abscess with congenital heart disease has not been emphasized sufficiently in the medical literature. Robbins [1] in a recent comprehensive report collected from the literature 23 cases of brain abscess associated with congenital heart disease and added 3 cases of his own. These 3 cases of brain abscess, all associated with the tetralogy of Fallot, were found when Robbins reviewed 58 cases of congenital heart disease in a series of 7,880 consecutive autopsies. Of the 26 cases described, it is noteworthy that in only 3 instances was the diagnosis of brain abscess established ante mortem and surgical intervention attempted.[2]

The present case is reported to call attention to the association of brain abscess with congenital heart disease and to point out that surgical intervention along with supportive medical care may effect a complete cure in some cases.

REPORT OF CASE

J. H., a white girl aged 9 years, was admitted to St. Louis Children's Hospital on Aug. 21, 1944 with the chief complaints of headache, vomiting and loss of weight for four weeks. Approximately six weeks before admission the patient had suffered a chill while attending the theater. At that time she felt feverish but was not especially ill. After twenty-four hours she seemed completely recovered. There were no adverse symptoms until two weeks later, when she began to have recurrent headache accompanied by vomiting. These headaches were severe and localized for the most part in the frontal area just above the left eye. The attacks of headache lasted for about five hours and were associated with severe intractable vomiting. She complained of weakness and went to bed of her own volition. The intermittent headaches and attacks of vomiting continued, and the child lost weight steadily. There were no further chills, but the parents noted low grade fever and gradual loss of strength.

She was admitted to another hospital for observation. The important findings there were as follows: X-ray examination of the skull revealed increased intracranial pressure. Examination of the eyegrounds showed congestion of veins but no definite papilledema. There was questionable lid lag on the left. An electrocardiogram taken at that time was interpreted as revealing sinus arrhythmia, normal conduction time, variable T waves and rotation of the electrical axis about 180 degrees from normal. X-rays of the sinuses were normal, and x-ray of the chest showed the lung fields clear. The mediastinum, heart and great vessels were thought to be within normal limits. The white blood cell count was 14,500. Blood culture was sterile. While in the hospital, the patient continued to vomit and required parenteral feeding. At this time the total weight loss since the onset of illness was estimated at 10½ pounds (4.7 Kg.), approximately one fifth of the body weight. She was transferred to St. Louis Children's Hospital for further study.

The family history was noncontributory, except that two years previously the father had had an amebic abscess of the liver, which was treated successfully. The past history was

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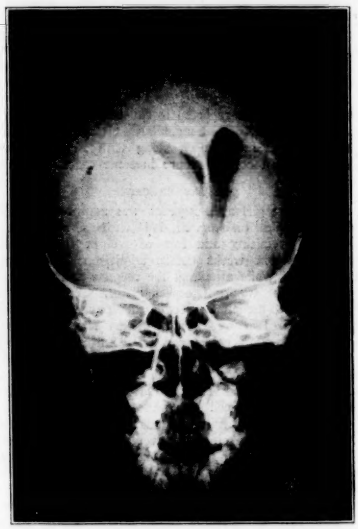
Dr. Smolik is now a member of the Department of Surgery, Section of Neurosurgery, St. Louis University School of Medicine.

1. Robbins, S. L.: Brain Abscess Associated with Congenital Heart Disease, Arch. Int. Med. **75**: 279 (May) 1945.
2. Ingham, D. W.: Paradoxical Embolism, Am. J. M. Sc. **196**: 201 (Aug.) 1938. Wechsler, I. S., and Kaplan, Abraham: Cerebral Abscess (Paradoxic) Accompanying Congenital Heart Disease, Arch. Int. Med. **66**: 1282 (Dec.) 1940.

significant in that a diagnosis of congenital heart disease had been made at 2 months of age. The physician called attention to a loud murmur heard over the precardium. According to the parents, however, the patient had never suffered from "heart trouble" and was never cyanotic. She had had the usual childhood diseases: pertussis at 5, measles at 7, chickenpox at 8. An appendectomy had been performed at 5 years.

On admission to St. Louis Children's Hospital, the patient was alert and cooperative. She complained of headache in the frontal area. She was extremely malnourished. There was no cyanosis and no clubbing of the fingers or toes. The significant findings were as follows: No definite enlargement of the heart was noted; a loud systolic murmur was audible over the precardium, with maximal intensity to the left of the sternum in the second intercostal space. There was no palpable thrill. Fluoroscopy showed widening of the superior mediastinum, with considerable pulmonic bulge. X-ray examination of the chest for heart size revealed the cardiac silhouette



Ventriculogram, anteroposterior view, Aug. 25, 1944, showing displacement of ventricular system to right of midline.

within normal limits, although there was some prominence in the region of the pulmonary artery. The hilus shadows and lung markings were not unusual. The ears, nose and throat, lungs and abdomen were within normal limits. Neurologic findings included an equivocal Macewen's sign, questionable left sixth nerve weakness and suggestive Babinski on the right. There was no disturbance in the superficial and deep reflexes. There was no ankle clonus. Funduscopic examination revealed prominent and tortuous veins and early choking of the optic disk on the left. There were no field defects and no nystagmus. Urinalysis was negative; hemoglobin was 14 Gm.; the white blood cell count was 11,800, with 1 stab cell, 59 segmented, 29 lymphocytes and 11 monocytes. Tuberculin and Kline tests were negative. Blood cultures were consistently sterile. Blood pressure ranged between 100 and 110 systolic, 68 to 75 diastolic. During the first three days of hospitalization the temperature was normal but the pulse rate was definitely slow, ranging between 54 and 80 per minute. The patient continued to complain of headache, and vomiting without nausea persisted. On the third hospital day she seemed more drowsy than usual. Despite hypertonic glucose, the drowsiness continued. Quite suddenly on the evening of this day the patient had respiratory difficulty with apnea. The pulse was poor and the skin became ashen gray. She obviously presented a problem of overwhelming increased intracranial pressure. Emergency measures gave only transient relief. Since her general condition was poor and there were no positive signs of localization, ventricular drainage was chosen as the best method to afford maximal relief from the intracranial tension with the least demand on the patient's meager reserves. Accordingly, at 10 p. m. on August 24, under local anesthesia, posterior perforator openings were made over each lateral ventricle. A catheter was introduced into the right lateral ventricle, from which fluid under great pressure was obtained. The patient improved almost immediately, becoming more alert and responsive; the pulse, respiration and color showed improvement.

Ten hours after the emergency ventricular drainage, ventriculography was performed. A lesion of the left frontal lobe was outlined, as shown in the accompanying illustration. Under local anesthesia a perforator opening was made over the left frontal area. The dura was opened. The dural edges and the exposed cortex were coagulated. An aspiration needle was introduced into the substance of the frontal lobe. No capsule resistance was encountered, but 110 cc. of thick gelatinous pus was aspirated. Sulfanilamide was sprinkled over the cortex, and the wound was closed in layers with silk.

Pus taken from the abscess cavity was studied carefully. Direct smear of this pus showed numerous polymorphonuclear leukocytes and mononuclear leukocytes, but no bacteria were seen. No amebas were noted. The material was cultured on blood agar, aerobically and under reduced oxygen tension, in two separate routine laboratories. In addition, in the Research Laboratory of St. Louis Children's Hospital some of this material was cultured on the chorioallantoic membrane of the developing hen's egg.[3] There was no evidence of bacterial growth on blood agar, but within forty-eight hours a heavy growth of Hemophilus influenzae was noted in the egg. This organism was subcultured with ease from the egg to blood agar. Morphology, staining reaction and cultural characteristics identified the organism as a member of the Hemophilus influenzae group. Numerous typings from the egg and from the blood agar subculture failed to reveal a capsule with A and with B rabbit serum. Likewise, a capsular stain failed to show the presence of a capsule. Even after mouse passage, no capsule developed.

In view of the infectious nature of the central nervous system lesion, the patient was given penicillin[3a] 20,000 units at once and 10,000 units subcutaneously every three hours. Sulfanilamide was given, 0.3 Gm. per kilogram of body weight in twenty-four hours. Since fluid intake was restricted during this critical postoperative period, sulfanilamide was used as a temporary measure. After twenty hours, when the fluid intake was more adequate, the chemotherapy was changed to sodium sulfadiazine and later to sodium sulfamerazine. During the period of waiting for encapsulation of the abscess, the patient improved steadily. The wound healed by primary intention. On September 11, seventeen days after the initial tapping of the abscess cavity, the patient became increasingly more irritable and drowsy. Headache and vomiting increased in intensity and frequency. The eyegrounds remained essentially the same, and the only suggestive localizing neurologic sign was right facial paresis. These signs suggested that the abscess had refilled.

In order to rule out the possibility of multiple abscesses, ventriculography was performed a second time. The same left frontal deformity was outlined. Accordingly, under local anesthesia the previous perforator opening was enlarged with rongeurs. The dura was sealed off carefully with electrocoagulation. When a ventricle needle was directed gently into the cortex, a firm resistance of the capsule was encountered. The cortex was coagulated and excised with loop cautery down to the capsule. The cortex was dissected away from the capsule with cottonoid. The capsule was incised, and about 180 cc. of pus was aspirated. The capsule was marsupialized to the scalp with chromic

3. Blattner, R. J.; Heys, Florence M., and Hartmann, A. F.: Advantages of Egg Culture Technic in Infectious Diseases, Arch. Path. **36**: 262 (Sept.) 1943.

3a. Penicillin was used in conjunction with sulfonamide therapy, since in a case of meningitis a nonencapsulated strain of Hemophilus influenzae was shown to be penicillin sensitive.

sutures and iodoform packs were placed loosely into the depths of the cavity. Sulfanilamide was sprinkled into the wound, and a loose dressing was applied. The patient withstood the procedure satisfactorily.

On direct smear of the pus obtained, no bacteria were seen. Specimens were sent as before to two separate laboratories, one of which reported the growth on blood agar of a non-hemolytic streptococcus, considered a probable contaminant. The other laboratory reported sparse growth on blood agar of an organism morphologically similar to that isolated previously on the chorioallantoic membrane.

Dressings were changed every two days. The packs were shortened and withdrawn. The capsule gradually extruded itself. Occasional tendency to herniation was controlled with lumbar punctures. The wound closed in gradually and was fully healed at the time of discharge on November 10, two months following the final opening and evacuation of the abscess.

August 25 to October 19, sulfonamide therapy was continued; drug levels ranging from 15 to 22 mg. per hundred cubic centimeters were maintained. In addition, penicillin therapy was given subcutaneously, 10,000 units every two hours from August 25 to September 27.

During the entire postoperative period, the patient showed rapid and steady improvement. She was discharged from the hospital on Nov. 10, 1944, in excellent condition with no evidence of physical, mental or emotional impairment.

COMMENT

A survey of the literature reveals that premortem diagnosis of brain abscess in patients with congenital heart disease is uncommon. However, if brain abscess were considered more generally whenever signs and symptoms of central nervous system involvement develop in a patient with congenital heart disease, the diagnosis would probably be made more frequently. Once the diagnosis of brain abscess is considered, air injection, particularly ventriculography, is of considerable value in establishing the existence and location of the space-occupying lesion. The surgical management of brain abscess must rest with the case in hand and the individual neurosurgeon. In this instance, aspiration followed by surgical drainage was utilized to good advantage. This conservative management seemed necessary in view of the critical condition of the patient. Sulfonamide and penicillin therapy were of great value in controlling the spread of infection. The organism cultured from pus obtained from the abscess was identified as a nonencapsulated influenza bacillus. It is of interest that no organisms were seen on direct smear of the pus obtained on initial aspiration of the abscess and that all cultures of this material except those on the chorioallantois were reported as "sterile." The occurrence of so-called "sterile" pus from brain abscess is not unusual. The fertile egg technic affords a useful method for supplementing the ordinary bacteriologic cultural methods.

In this case the only suggestion of a previous infection which may have etiologic relation with the development of the brain abscess occurred six weeks prior to admission, when the patient had sudden chill and fever. The symptoms abated within twenty-four hours, and no definite diagnosis as to the nature of the infection was made. Two weeks later symptoms referable to the central nervous system were noted. At the time of admission to St. Louis Children's Hospital there was no evidence of infection elsewhere in the body to suggest the site of the primary focus. The pathogenesis in this instance remained obscure, as is often the case with brain abscess. Various theories as to pathogenesis of brain abscess have been suggested. A comprehensive review is included in a recent article by Collis.[4] Frequent attention has been drawn to the presence of sepsis in the lesser circulation, which, by direct passage to the central nervous system, explains the development of brain abscess. The absence of pulmonary infection would seem to make this explanation less likely in the present case.

Diagnosis as to type of congenital heart lesion lay between atypical patent ductus arteriosus and patent interventricular septal defect. While the exact nature of the lesion could not be determined definitely, it was apparent that an arteriovenous shunt existed. The existence of such a congenital heart lesion with arteriovenous shunt suggests a possible mode of pathogenesis. The congenital cardiac lesion presents a possible mechanical arrangement, in view of the mixing of arterial and venous blood and the short-circuiting of the pulmonary bed filter, leading to so-called "paradoxic" embolism. Batson[5] has suggested another conception for the explanation of "paradoxic" embolism. He has drawn attention to the vertebral system of valveless veins which have rich anastomoses with the caval, portal and pulmonary systems. By injection experiments, Batson showed that retrograde embolism to the brain and cranium can occur when intra-abdominal and intrathoracic pressure relationships are modified. According to this view, a brain abscess might result from "paradoxic" embolism even in the absence of congenital heart lesion.

SUMMARY

Symptoms of central nervous system involvement in a patient with a congenital heart lesion suggested the diagnosis of brain abscess. The clinical impression was verified by ventriculography, and surgical treatment was instituted successfully. The organism cultured from aspirated pus was identified as a member of the Hemophilus influenzae group. Sulfonamide and penicillin therapy were regarded as important adjuncts to surgical intervention. The patient has made a complete recovery and is entirely symptom free one year after operation. She shows no personality change and no alteration of mental level.

500 South Kingshighway, St. Louis 10.

4. Collis, J. L.: The Etiology of Cerebral Abscess as a Complication of Thoracic Disease, J. Thoracic Surg. **13**: 445 (Nov.) 1944.

5. Batson, O. V.: The Function of the Vertebral Veins and Their Role in the Spread of Metastases, Ann. Surg. **112**: 138 (July) 1940.

Council on Foods and Nutrition

ACCEPTED FOODS

The following additional foods have been accepted as conforming to the Rules of the Council on Foods and Nutrition of the American Medical Association for admission to Accepted Foods.

GEORGE K. ANDERSON, M.D., *Secretary.*

FOODS FOR SPECIAL DIETETIC PURPOSES (See Accepted Foods, 1939, p. 295).

Sunway Fruit Products, Chicago.

SUNWAY BEVERAGE BASE—Orange, Lemon and Lime flavors. Each fruit flavored beverage base contains varying proportions of Powdered Orange Juice Product,* Powdered Lemon Juice Product,* orange oil, lime oil, lemon oil, tricalcium phosphate, F. D. & Co. Dye, anhydrous citric acid, vitamin C, vitamin B_1.

Analysis (submitted by manufacturer).—Ash 1.5%, moisture 2.1%, acidity as citric acid 19% (equivalent to 1.009 liters of normal hydrochloric acid), carbohydrate 78.7%, protein 0.6%, fat 0.183%.

Calories.—1,020 Gm. per 12 ounce can.

Vitamins:

Vitamin B_1	0.065 Gm. per 12 ounce can
Vitamin C	7.700 Gm. per 12 ounce can

When the beverage is reconstituted according to the directions on the can, each 8 ounce serving of finished drink contains:

Calories	116.32 mg.
Vitamin B_1	1.0 mg.
Vitamin C	120.0 mg.

* The Orange and Lemon Powder Products used are those of the Borden Company and are composed of dehydrated citrus juice and powdered corn syrup.

PREPARATIONS USED IN THE FEEDING OF INFANTS (*See* Accepted Foods, 1939, p. 156).

Campbell Soup Company, Camden, N. J.

CAMPBELL'S STRAINED VEGETABLE BABY SOUP, contains tomatoes, carrots, sweet potatoes, white potatoes, peas, onions, oatmeal, okra, celery, salt and water.

Analysis (submitted by manufacturer).—Total solids 13.4%, protein 1.95%, fat 0.5%, carbohydrate by difference 9.3%, crude fiber 0.43%, calcium 0.024%, phosphorus 0.051%, iron 0.73 mg. per hundred grams, copper 0.24 mg. per hundred grams, manganese 0.018 mg. per hundred grams.

Calories.—14 per ounce.

Vitamins.—

Vitamin A	2,550	I. U. per hundred grams
Thiamine	0.069	mg. per hundred grams
Riboflavin	0.064	mg. per hundred grams
Ascorbic acid	7.5	mg. per hundred grams
Niacin	1.05	mg. per hundred grams

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 19, 1946

DEATHS OF PHYSICIANS IN 1945

The obituaries of 2,962 physicians were published in THE JOURNAL during 1945. The American Medical Directory Report Service recorded 3,815 deaths in the United States, possessions and temporary foreign, or 853 more than were published in THE JOURNAL. In addition approximately 200 notices of deaths had been received but not yet published, giving a total of 4,015 deaths for an overall consideration. The present analysis, however, is concerned only with the 2,962 deaths published.

Under the accelerated program up to June 30, one class of 5,136 students was graduated in medical schools in the United States in 1945. Deducting the 4,015 deaths, an estimated net increase to the profession of 1,121 is noted. Overlapping totals are recorded, since deaths in years other than 1945 are included in this analysis for the current year. Increases in the profession due to the accelerated medical school program are not reflected in these figures, since it was in the year 1944 that most medical schools graduated two classes.

Age.—The average age at death was 65.3 in 1945 as compared with a similar age in 1944. Sixty-nine physicians died between the ages of 25 and 29, 88 between 30 and 34, 66 between 35 and 39, 101 between 40 and 44, 117 between 45 and 49, 168 between 50 and 54, 245 between 55 and 59, 330 between 60 and 64, 464 between 65 and 69, 494 between 70 and 74, 390 between 75 and 79, 246 between 80 and 84, 139 between 85 and 89, 31 between 90 and 94, 11 between 95 and 99 and 3 aged 100 or over.

Causes.—Heart disease continues to lead the causes of death among physicians. As is customary in compiling these statistics, primary causes and contributory factors were included. Coronary thrombosis and occlusion accounted for 655; 246 occurred in the ages between 60 and 69. Diseases of the myocardium and pericardium accounted for 146 deaths, angina pectoris and other coronary diseases 121, chronic heart valvular disease and rheumatic heart disease 21, subacute bacterial endocarditis (except rheumatic fever) 11 and other diseases of the heart 330. Cerebral hemorrhage, thrombosis and embolism were responsible for 335 deaths, arteriosclerosis for 150 and cardiovascular diseases for 76. Cancer and tumors accounted for 296, 151 of which were classified under cancer of the gastrointestinal tract. One hundred and forty-five deaths were attributed to pneumonia, of which 4 were atypical or virus pneumonia. Asthma caused 13 and bronchitis and pleurisy 6 deaths. Chronic nephritis and uremia accounted for 114 and acute nephritis for 15. Diseases of the circulatory system caused 66 deaths, diabetes 44, Hodgkin's disease and leukemia 26, pernicious anemia 12 and other diseases of the blood 7, diseases of the gastrointestinal tract 29, cirrhosis of the liver 20 and other diseases of the liver 6, tuberculosis 19, diseases of the respiratory system 30, peptic ulcer (ulcer of the stomach and duodenum) 18, peritonitis 11, influenza 6, pulmonary embolism and thrombosis 12 and other embolism and thrombosis 22, diseases of the genitourinary tract 10, aneurysm 10, diseases of the gallbladder, bile duct and cholecystitis 14, diseases of the nervous system 23, mental disease and diseases of the brain 4 each, diseases of the prostate 27, asthma 13, chronic arthritis 8, appendicitis, encephalitis and meningitis 5 each, diseases of the bones and organs of locomotion and osteomyelitis 4, diseases of the thyroid and alcoholism 3 each, abscess and other infectious diseases 2, bacteria, septicemia and pyemia 2, hernia 1, syphilis 1 and diseases of the spinal cord 1. There were 29 deaths following operation. One death each was attributed to epidemic hepatitis, "constitutional shock due to hapamine," Addison's disease, pellagra, typhus, undulant fever, mushroom poisoning and typhoid. Senility was returned as the cause of death in 34 instances, while the cause of death was ill defined in 7.

Suicides and Homicides.—Of the 25 suicides recorded 11 deaths were the result of bullet wounds, 3 of a cut artery and 3 of drugs. One death each was attributed to carbon monoxide, gas, hanging, jumping, drowning, alcoholism, barbiturate intoxication and leaping in front of a train. The method was not obtained in 1 suicide. Shooting was the method used in the 2 homicides reported,

Accidental Deaths.—Of the 87 accidental deaths, automobiles were involved in 33, 1 of which was caused by an automobile and train crash. Of the unusual accidents 1 physician died of burns received when his clothing became ignited from a cigar that he had been smoking when he fell asleep, 1 died in a hunting accident when his gun went off as he was handing it to a fallen

companion, 1 of accidental phenobarbital poisoning, 1 of fractured ribs when he fell beneath a farm machine and 1 when he accidentally fell from a cliff.

Miscellaneous Positions.—Among the decedents were 256 who had been teachers in medical schools, of whom 97 had reached professorial status. There were 8 deans, 1 of whom had also been president of a medical college, 2 principals of a high school, 2 teachers in public schools, 1 of whom had been head of the business and practice department of the District of Columbia high schools, and 78 members of education boards. One hundred and forty-four had been health officers, 94 members of health boards and 16 members of medical examining boards. Fifty-nine had been coroners, 54 mayors, 27 pharmacists, 23 bank presidents, 13 police physicians or surgeons, 11 missionaries, 7 postmasters, 6 druggists, 5 dentists, 4 lawyers, 1 a city alienist and 1 a police commissioner. There were 39 authors and 21 editors. There were 14 members of legislatures, 1 of whom was a member of the United States Senate. One physician once served as minister to Liberia. In the various military connections, 1 had served in the Boer War, 2 in the Boxer Rebellion, 5 in the Civil War, 2 in the Philippine Insurrection and 516 in World War I. One each had been in the Austrian, German, Hungarian, Greek and Russian imperial armies and 3 in the British army.

Association Officers.—The decedents included 2 who had been Vice President and 3 members of councils, 1 of whom had been chairman and 1 member of the Judicial Council. There were 13 who had been section officers and 34 who had served as members of the House of Delegates. Twenty-nine had been presidents of their state medical societies, 1 president-elect, and 178 had been president of their county medical societies.

Killed in Action

The 2,962 obituaries included 116 physicians who were killed in action during World War II and 118 who died while in military service. Specific information was not available as to the type of death of those killed in action in the general group. Some reports indicated mine explosion, multiple wounds, gunshot wounds, explosion of bombs and fragment shell wounds. A number had first been reported missing in action and subsequently given a presumptive date of death. The following locations as those where injuries resulting in death occurred are noted as received in official reports: Pacific area 19, Germany 13, European Theater of Operations and France 12 each, Okinawa 11, including 6 who were lost in the attack on the *Comfort*, Belgium 8, Asiatic area 7, Luzon 6, South China Sea 5, Italy 4, Africa 3, Io Jima and Mindanao 2 each and the Netherlands, Marianas, Salerno, Austria, China, North America area, Atlantic area, Isle of Capri, Yugoslavia and Algeria 1 each. Two of this group died while prisoners of the German government, 1 when his ship was lost off the coast of the New Hebrides and 1 when his ship was lost en route to Iraq. Thirty-nine died in the ages between 25 and 29, 39 between 30 and 34, 22 between 35 and 39, 10 between 40 and 44, 4 between 45 and 49, 1 between 50 and 54 and 1 between 55 and 59.

Died in Military Service

Of the 118 physicians who died while in military service, aircraft accidents caused the deaths of 22 and vehicle accidents of 10. Heart disease accounted for 25 deaths, 12 of which were attributed to coronary thrombosis. Carcinoma caused 13 deaths. In the remaining deaths from miscellaneous causes, 1 physician died of poliomyelitis and 3 of infectious hepatitis. Two deaths followed an operation. Gunshot wounds led the suicides with 4 deaths, hanging caused 2 and cut artery, acute morphine poisoning, barbiturate poisoning and "no method" 1 each. Eighteen died while in military service between the ages of 25 and 29, 31 between 30 and 34, 14 between 35 and 39, 21 between 40 and 44, 12 between 45 and 49, 6 between 50 and 54, 10 between 55 and 59, 4 between 60 and 64, 1 between 65 and 69 and 1 between 70 and 74.

Of the seven U. S. Public Health Service officers whose deaths were recorded, 1 died when he slipped on the Jacob's ladder while assisting wounded aboard ship, 1 when his ship was destroyed in enemy action, 1 as a suicide, 1 of coronary thrombosis, 1 of heart disease and 2 of cerebral hemorrhage. One died between the ages of 25 and 29, 1 between 30 and 34, 2 between 40 and 44, 1 between 50 and 54, 1 between 60 and 64 and 1 between 65 and 69. There was 1 Merchant Marine casualty, aged 64.

The 116 deaths classified killed in action give an average age of 33.0, while the 118 who died while in military service give 40.1. Combining the 2, an average age of 36.6 is noted. Deducting this group from the general total of 2,962 deaths, an average age of 67.7 is reported. This figure must be interpreted with great care, however, since a proportion of the young physicians who died in service would have undoubtedly died from other causes had they remained in civilian life.

Since the outbreak of the war THE JOURNAL has recorded the obituaries of 217 physicians who died in action and 373 who died while in military service. THE JOURNAL again emphasizes that the aggregate total of 590 deaths represents only a percentage of the total to be released eventually through official military channels. THE JOURNAL will continue to publish these reports as they are received.

THE ONSET AND SPREAD OF POLIOMYELITIS

The method by which poliomyelitis is transmitted from one person to another has long been a subject of active investigation. Recently emphasis has been placed on the environmental and sanitary settings, for the virus can be isolated from sewage, privies, stagnant water and flies caught in polluted areas. The virus may remain inactive in such nonhuman reservoirs for several months and even then be experimentally activated by being transferred to monkeys, but it has not been established that the virus from such an environment gives rise to human poliomyelitis, although the possibility of transmission to human beings from nonhuman sources undoubtedly exists. A large body of facts is now available, however, indicating that the disease is passed from person to person by respiratory and oral transfer; these facts have been considerably reinforced by two recent studies of epidemics observed in Chicago and Buffalo.

The Chicago investigations by Casey and his associates,[1] using material from a large urban community during a nonepidemic year, may be contrasted with a similar report by Casey[2] on patient to patient contact in a rural area during a severe epidemic in Alabama in 1941. The two studies reached practically the same conclusions. The incubation period from the time of exposure to the onset of the prodromal period was from four to thirty-five days, averaging twelve days, with the infectious period lasting three days before or three days after the onset of the prodromal period. Evidence was produced, moreover, establishing at least 80 per cent patient to patient contact in the Alabama epidemic, a similar rate being reported in the Chicago studies. To achieve this figure cases were counted of "illnesses compatible with poliomyelitis." The study was favored by the hospitalization of 230 out of 233 cases during the Chicago epidemic, and the diagnosis in the nonparalytic group was based on a history of a febrile illness, contact with known cases and the finding in the spinal fluid of an elevation of protein to 45 mg. per cubic millimeter or above. With such cases included, multiple cases in the family were the rule rather than the exception and poliomyelitis was found to be, in the Chicago cases, contagious to the degree of 90 per cent in the 1½ to 3½ age group. Paralysis developed in about 1 case in 6.

The Chicago study thus brings to attention the high rate of patient to patient contact in poliomyelitis when fully investigated cases of minor illnesses, particularly by either daily thermometer readings or retrospective spinal fluid examinations or both, are taken into consideration. Until serologic or other inexpensive laboratory tests are available, the diagnosis of poliomyelitis in children without paralysis must rest on such criteria.

The 1944 epidemic in the Buffalo area offered opportunities, as did the Chicago epidemic of 1945, to study the relative importance of the environmental and human reservoirs of the virus in initiating an epidemic. Smith[3] and her associates found that the first 3 paralytic cases in the epidemic did not arise "de novo" but were part of a cycle of poliomyelitis which had been in progress but unsuspected for approximately three months. The incidence of illnesses in the community, moreover, which were highly suggestive of the nonparalytic forms of the disease was at least five times the number of recognized cases. Poliomyelitis tended to develop in a setting of minor illnesses, which, when carefully analyzed, appeared similar to those caused by the virus of the disease. These unrecognized cases formed a human reservoir, and the virus appeared to be continuously active between epidemic periods. Based on these findings, Smith believes that the concept of what constitutes an epidemic of infantile paralysis should be broadened, for an "epidemic" of poliomyelitis may well be under way long before paralytic cases are recognized.

As in the report by Casey, the Buffalo investigators found that the evidence pointed predominantly toward a person to person transfer of the virus, most likely by means of respiratory or oral reactions rather than a transfer by flies. Although the general environmental factors in transmission of poliomyelitis cannot be entirely disregarded, these recent studies tend to stress the direct person to person transfer as the most likely mode of spreading the disease.

1. Casey, Albert E.; Fishbein, W. I., and Bundesen, H. N.: Transmission of Poliomyelitis by Patient to Patient Contact, J. A. M. A. **129:** 1141 (Dec. 22) 1945.
2. Casey, Albert E.: Observations on an Epidemic of Poliomyelitis, Science **95:** 359 (April 3) 1942; The Incubation Period in Epidemic Poliomyelitis, J. A. M. A. **120:** 805 (Nov. 14) 1942; Place of Contact and Radial Spread of Epidemic Poliomyelitis, Am. J. Dis. Child. **69:** 152 (March) 1945.

Current Comment

EFFECT OF INDUCED JAUNDICE IN RHEUMATOID ARTHRITIS

The appearance of jaundice in the presence of rheumatoid arthritis generally brings about a distinct remission of the arthritic symptomatology. Most recent of the studies on the subject is that by Gardner and her colleagues[1] of Oxford. A total of 312 patients with polyarticular arthritis of the rheumatoid type were given material from cases of infectious hepatitis. Only 32 of the inoculated patients developed jaundice. Of the patients successfully inoculated, the interval between the time of inoculation and the appearance of jaundice varied from twenty-seven to one hundred and thirty-one days. Ten patients became completely free from pain in all their joints; frequently free movement was

3. Smith, Martha L.; Bridge, E. M.; Underwood, Helen E., and Dale, Grace E.: A Study of the Origin of an Epidemic of Poliomyelitis, J. A. M. A. **129:** 1150 (Dec. 22) 1945.
1. Gardner, Frances; Stewart, Alice, and MacCallum, F. O.: Therapeutic Effect of Induced Jaundice in Rheumatoid Arthritis, Brit. M. J. **2:** 677 (Nov. 17) 1945.

restored and the joint swellings disappeared; 8 patients became free from pain in many but not all affected joints, the periarticular swellings diminished and mobility was greatly increased; 7 patients obtained some relief from pain and swelling with increased improvement; the joint condition of 7 patients was unaltered. Definite relationship between the intensity of jaundice and type of remission could not be shown. The greatest degree of improvement averaged forty-two days, but a much longer time usually elapsed before the joints relapsed to the condition existing prior to the introduction of jaundice. Studies of the blood sedimentation rate indicated that the jaundice materially interferes with the value of this test as a reflection of activity of the arthritic process; usually there was an abrupt fall in the blood sedimentation rate after the appearance of jaundice. An increased rate above the original value commonly occurred after two or three months, during the period in which the arthritic symptoms remained improved. The remissions produced by the British investigators, as well as those which have been reported by others, have been temporary. Treatment of rheumatoid arthritis by attempting to induce jaundice is not recommended. The procedure is justifiable in the treatment of patients with rheumatoid arthritis only as a possible means of controlled research with the allied possibility of analyzing the mechanism by which such remissions are produced.

PACIFIC VIVAX MALARIA TRANSMITTED BY ANOPHELES QUADRIMACULATUS

Malaria carriers among personnel of the armed services returning to this country from Pacific combat areas will be widely distributed throughout our country. Some of them will come in contact with anopheline mosquitoes in regions where malaria has been unknown for many years as well as in places where malaria is endemic. The prevalence and course of malaria infection in personnel originating from malarious areas compared with similar data for personnel from nonmalarious locations should be studied. The transmission of imported strains of malaria by indigenous anophelines is of much epidemiologic importance. R. B. Watson[1] in a recent study determined that Pacific strains of Plasmodium vivax can be transmitted by Anopheles quadrimaculatus. From soldiers who had presumably acquired their infections in Pacific war areas, six strains of vivax were isolated by transfer of blood to patients who were to receive malaria therapy. The induced infections were not unlike those produced by the McCoy strain of P. vivax. Some of the patients with known or probable histories of former vivax infections demonstrated immunity to the Pacific strain infections, contrary to the general belief that tolerance conferred by vivax infection is largely homologous. Anopheles quadrimaculatus mosquitoes were fed on these patients with induced malaria when gametocytemia favored mosquito infection. Salivary gland dissections of these mosquitoes demonstrated infections for three of the six Pacific vivax strains. For two of these strains it was found that low densities of gametocytes could infect mosquitoes. Watson concludes that "at least some of the Pacific vivax strains can be transmitted by A. quadrimaculatus."

1. Watson, Robert B.: Observations on the Transmissibility of Strains of Plasmodium Vivax from Pacific War Areas by Anopheles Quadrimaculatus, Am. J. Trop. Med. **25**: 315 (July) 1945.

POSTMORTEM EXAMINATIONS AND THE JEWISH LAW

Because of the undesirability of some resistances against postmortem examination that appear among the relatives of Jewish patients who die, Dr. I. M. Rabinowitch,[1] special lecturer in medical jurisprudence at McGill University, Montreal, recently investigated the laws with regard to postmortem examination contained in the Bible and in the Talmud. He points out that the attitudes of non-Jewish people of the same period toward postmortem examinations were much the same as those of the Jewish people. Arguments in favor of prohibiting postmortem examinations are based on four authentic instances in which a requested postmortem examination was prohibited by a celebrated rabbi. However, Rabinowitch points out that permission was refused in each instance because of the argument that the postmortem examination would not be of any value either in clearing the cause of death or of any benefit to the living. The thorough search which Rabinowitch has made convinces him that nowhere in the Bible, in the Talmudic, in the post-Talmudic or in the later Rabbinical writings is there any evidence that postmortem examinations are prohibited by Jewish law. Indeed such prohibition would be inconsistent with the fundamental directing principle in Judaism—"The Laws were given that man shall live by them, not that they shall die by them."

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

The first peacetime Congress on Medical Education and Licensure in five years will be held in Chicago February 11 and 12. The program appears elsewhere in this issue. The difficult problems of wartime medical education and licensure, which were met and solved with determination, have left an aftermath of reconversion problems of considerable magnitude. Some of these will be presented in the papers and discussions of the formal program. Many others will be the concern of groups affiliated with the Council on Medical Education and Hospitals of the American Medical Association, which regularly hold sessions at the time of the congress. Such groups include the Association of American Medical Colleges, the Advisory Board for Medical Specialties, the National Board of Medical Examiners and several others. Further delay in making hotel reservations is not safe. Communications to the Palmer House should be addressed to Mr. R. L. Collison, mentioning the Congress on Medical Education and Licensure, to insure the best service. Other nearby hotels are the Stevens, Blackstone, La Salle, Morrison, Continental and Congress.

1. Rabinowitch, I. M.: Postmortem Examinations and Jewish Law.

MEDICINE AND THE WAR

ARMY

BRIG. GEN. RAYMOND W. BLISS NAMED DEPUTY SURGEON GENERAL

Brig. Gen. Raymond W. Bliss was recently appointed Deputy Surgeon General to succeed Major Gen. George F. Lull, who retired after thirty-three years of service in the Medical Department. In addition to his new responsibilities, General Bliss will continue to serve as assistant Surgeon General and Chief of Operations Service. He was recently awarded the Distinguished Service Medal (THE JOURNAL, Dec. 29, 1945, p. 1265).

General Bliss became Chief of Operations Service in the Office of the Surgeon General, Washington, D. C., in June 1943 and in August 1944 was made Assistant Surgeon General. He graduated from Tufts College Medical School, Boston, in 1910 and was commissioned in the Army Medical Reserve Corps in 1911.

REFRESHER COURSES FOR ARMY DOCTORS

Major Gen. Norman T. Kirk, Surgeon General of the Army, announced recently that refresher training courses covering twelve weeks will be offered to doctors leaving the service in the fields of medicine, surgery and neuropsychiatry. The program will be available until June 30 at army hospitals to reserve corps, National Guard and medical corps officers scheduled to leave the service.

Such a refresher course would provide temporary duty assignment at a hospital where the medical officer would have clinical work under supervision and opportunity for study of recent advances in medicine.

CANADIAN SURGEON GENERAL VISITS OFFICE OF THE SURGEON GENERAL

Major Gen. C. P. Fenwick, director general of medical Services, Royal Canadian Army Medical Corps, recently completed an inspection tour of the various divisions of the Office of the Surgeon General of the Army. The purpose of his visit was to make a first hand study of the organizational plans for the medical department of the postwar army with the aim of preparing similar plans for the Canadian army. During his stay, General Fenwick also inspected installations at the Army Medical School, Walter Reed General Hospital and several naval medical installations in Washington.

AVIATION MEDICAL EXAMINERS

Sixty-four medical officers recently completed the aviation medical examiners' course at the A. A. F. School of Aviation Medicine, Randolph Field, Texas. Brig. Gen. Eugen G. Reinartz, commandant of the school, presented the graduation awards to the first peacetime class of flight surgeons. These medical officers, specially trained in the phases of aviation medicine dealing with the care of fliers and combat crewmen, will become flight surgeons on completion of additional training.

FRENCH MEDICAL OFFICERS PLAN TO VISIT ARMY MEDICAL INSTALLATIONS

Three French medical officers, Commandant Louis Pages, Commandant Francis Borrey and Commandant Arquie, are making plans to spend four months in the United States, seven and a half weeks of which will be spent in touring Army Medical Department installations. The itinerary includes a ten day stay at Moore General Hospital, Swannanoa, N. C., for the study of methods of treatment of tropical diseases and a three week study at the laboratories and in organization and treatment at Walter Reed General Hospital, Washington, D. C. They plan also to visit the Food and Nutrition Laboratories, Chicago, for a two week observation of research in nutrition and food packaging. A week's study will be spent at Fort Bragg, North Carolina, for an observation of methods of treatment employed there. A discussion of findings at the U. S. Respiratory Laboratory and observation of water and sewerage systems will conclude their trip.

ARMY AWARDS AND COMMENDATIONS

Colonel Herbert C. Gibner

The Legion of Merit was recently presented to Col. Herbert C. Gibner, formerly of Washington, D. C.: Accompanying the award was a citation explaining that "Col. Herbert C. Gibner, Medical Corps, as surgeon of the Seventh Corps Area, later designated the Seventh Service Command, from September 1940 to December 1943 solved the complex medical problems of the command in an outstanding manner during a period of mobilization, rapidly expanding garrisons and changing organization. He swiftly evaluated the general status and availability for active service of approximately four thousand medical department reserve officers and supervised the reorganization of the command's medical department in line with that of the Army. His comprehensive understanding of the exacting requirements and technical details of the medical service, his skill, leadership and mastery of staff relationship, won high regard for the medical section of command headquarters and the service in the field. His exceptional ability as a teacher was so widely recognized that service under his supervision was sought by many medical officers. Colonel Gibner made a major contribution to the efficient operation of the Seventh Service Command" Dr. Gibner graduated from Yale University School of Medicine, New Haven, Conn., in 1903 and entered the service May 1, 1905.

Major Walter W. King

Major Walter W. King, formerly of Peoria, Ill., was recently awarded the Bronze Star medal at Winter General Hospital, Topeka, Kan., where he is now stationed as chief of the surgical service. The citation accompanying the award emphasized his "meritorious service in connection with military operations aganst the enemy as surgeon, general surgical team No. 5, third auxiliary surgical group, from June 6, 1944 to October 16, 1944, in France and Belgium. Although the arrival of medical equipment and supplies was delayed during the landing of his surgical team on the invasion beach on D day, Major King, displaying outstanding initiative and marked professional ability, organized his group and gave immediate treatment to battle casualties. During subsequent operations he displayed tireless effort and worked many hours each day to bring expert medical service to seriously wounded patients." Dr. King graduated from Northwestern University Medical School, Chicago, in 1930 and entered the service Aug. 26, 1942.

Lieutenant Colonel Rudolph N. Schullinger

Lieut. Col. Rudolph N. Schullinger, formerly of New York, was recently awarded the Legion of Merit for "unusual service in the distribution of penicillin through the various base hospitals in England and for the establishment of a hospital in France, following the invasion." Recently returned from Europe, where he was chief of surgery of the Churchill Hospital, Oxford, England, Colonel Schullinger has now been assigned to the staff of the Halloran General Hospital. Dr. Schullinger graduated from Columbia University College of Physicians and Surgeons, New York, in 1923 and entered the service Feb. 15, 1942.

Captain R. L. Wall Jr.

Capt. Roscoe L. Wall Jr., formerly of Winston-Salem, N. C., was recently awarded the Bronze Star Medal for outstanding achievement. His citation reads, in part, "Captain Wall, as surgeon of Headquarters Squadron, Ninth Air Defense Command, rendered invaluable service to the personnel of the headquarters. He worked tirelessly day and night to provide medical attention for the squadron, cheerfully accepting any additional burdens which arose. At the same time, when his staff was depleted by transfers, he trained new personnel and reorganized the action. The professional knowledge, initiative and devotion to duty displayed by Captain Wall reflects the highest credit on himself and the armed forces of the United States." Dr. Wall graduated from Jefferson Medical College of Philadelphia in 1940 and entered the service Nov. 16, 1942.

Colonel Joseph A. Crisler Jr.

The Legion of Merit was recently awarded to Col. Joseph A. Crisler Jr., formerly of Memphis, Tenn., for meritorious services. The citation accompanying the award read, in part, "Demonstrating professional skill and sound judgment, Colonel Crisler capably supervised the activities of his auxiliary surgical group. His superior leadership was reflected in the exceptional work performed by his organization in First Army and evacuation hospitals. . . . Colonel Crisler's extraordinary ability and careful attention to detail contributed directly to the saving of many lives, reflecting highest credit on himself and the military service." Dr. Crisler graduated from Harvard Medical School, Boston, in 1921 and entered the service Sept. 8, 1942.

Lieutenant Colonel I. Herbert Scheffer

The Bronze Star was recently awarded to Lieut. Col. I. Herbert Scheffer, formerly of New York, for "meritorious service in connection with military operations as chief of the Public Health Section headquarters, European Theater of Operations, from Aug. 26, 1944 to May 8, 1945. Lieutenant Colonel Scheffer observed, reported and took necessary action relative to civilian public health conditions in the Paris area as far as the interests of the Allied armed forces were concerned. By his prompt action and superior professional skill he was instrumental in the elimination of numerous health hazards in the area, in keeping to a minimum the incidence of contagious diseases and in correlating the turnover of civil affairs. Colonel Scheffer's accomplishments reflect the highest credit on himself and the armed forces of the United States." Dr. Sheffer graduated from McGill University Faculty of Medicine, Montreal, in 1925 and entered the service Aug. 12, 1942.

Captain Maurice L. Malins

The Soldier's Medal was recently awarded to Capt. Maurice L. Malins, New York, in company with others, for "heroism displayed at U. S. A. A. F. Station 493 on March 4, 1944. When a P-38 type aircraft crashed in flames on the edge of a deep ravine, these members of the 315th Troop Carrier Group, realizing the urgency of effecting a prompt rescue of the pilot, hastened to the scene of the accident and, disregarding the pilot's warning that the aircraft was in imminent danger of exploding, gallantly struggled to extricate the trapped pilot, and, when his release had been effected, assisted in extinguishing the flames. By their prompt and courageous action they were successful in saving the pilot's life, and their unhesitating devotion to duty reflects great credit both to themselves and to the service." Dr. Malins graduated from McGill University Faculty of Medicine, Montreal, in 1932 and entered the service May 21, 1941.

Captain William J. Slaughter

Capt. William J. Slaughter, formerly of Meridian, Miss., was recently awarded the Bronze Star for meritorious achievement in battle. The citation states that Captain Slaughter, with the fighting 41st through the bloody action in the Netherlands East Indies and the more recent heavy battles of the Philippines, distinguished himself by his courage and bravery. His untiring devotion to duty won for him the respect of his fellow doctors and the deepest gratitude of the men he helped." Dr. Slaughter graduated from the University of Tennessee College of Medicine, Memphis, in 1937 and entered the service Nov. 1, 1940.

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946

MISCELLANEOUS

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

ILLINOIS

MacNeal Memorial Hospital, Berwyn. Capacity, 210; admissions, 6,350. Mr. F. J. McCarthy, Administrator (residents—mixed service, now and April 1).

Illinois Masonic Hospital, Chicago. Capacity, 186; admissions, 5,280. Mr. William H. Tenney, Superintendent (resident—medicine).

IOWA

Broadlawns, Polk County Hospital, Des Moines. Capacity, 295; admissions, 3,044. Mr. T. P. Sharpnack, Administrator (3 interns, July 1).

MASSACHUSETTS

Memorial Hospital, Worcester. Capacity, 215; admissions, 7,713. Dr. Winthrop B. Osgood, Medical Director (2 interns).

NEBRASKA

Lincoln General Hospital, Lincoln. Capacity, 223; admissions, 5,649. Mr. Robert B. Witham, Administrator (4 interns, July 1—male or female; resident—mixed service).

NEW YORK

Beth Moses Hospital, Brooklyn. Capacity, 215; admissions, 5,268. Mr. J. Goodfriend, Executive Director (interns, February to October).

NORTH CAROLINA

James Walker Memorial Hospital, Wilmington. Capacity, 331; admissions, 8,636. Mr. George R. Darden, Assistant Superintendent (interns, April 1).

UTAH

St. Mark's Hospital, Salt Lake City. Capacity, 245; admissions, 5,121. Dr. R. M. Muirhead (2 interns).

WASHINGTON

Northern Permanente Foundation Hospital, Vancouver. Capacity, 360; admissions, 11,087. Dr. J. W. Neighbor, Medical Director (interns, April 1 and July 1).

COST OF HEAVY CARBON TO BE CUT NINETY PER CENT

The cost of heavy carbon, used by scientists, for example, to follow the course of sugar or other foods in the body, will be cut from $400 a gram to approximately $40, as a result of a recent industrial development. The plant which will produce heavy carbon (carbon 13, as it is sometimes called) so that its cost will come down is to be built by the Sun Oil Company and the Houdry Process Corporation. The new plant will consist of a series of four or five towers 90 to 100 feet high, will cost approximately $100,000 and will produce about 500 Gm. of carbon 13. Its availability in larger amounts and at a lowered cost will make possible further progress in research on cancer, diabetes and arteriosclerosis. This material can also be used to grow vegetables which would provide the tracer elements through which scientists can watch the ultimate absorption of the food into the body cells.

COURSE OFFERED TO DISCHARGED MEDICAL OFFICERS

Harvard Medical School, Boston, will offer a six months refresher course to medical officers discharged from the armed forces. The first course will begin February 1. The course will emphasize current scientific knowledge and theories and advances in the medical field and will be under the supervision of Eugene C. Eppinger, assistant dean.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Denton, Nathan C. Jr., Major, Oneonta.
Hall, Edwin P., Capt., Vet. Adm., Montgomery.
MacLennan, Edward R., Major, E. Ida Ave., Opp.
McLin, Thomas G., Lt. Col., Veterans Adm., Fac., Tuscaloosa.
Selden, Joseph L., Jr., Capt., Watkins Banking Co., Faunsdale.
Smith, Virgil D., Capt., Leeds.

Arizona

O'Neil, James T., Capt., Coolidge.
Sarlin, Charles N., Major, 2010 E. 7th St., Tucson.
Thompson, Hugh C. Jr., Major, Route 2, Box 660, Tucson.

Arkansas

Adams, Carl H., 1st Lt., University Hospital, Little Rock.
Burt, Elmer G., Capt., 141 1st St., Crossett.
Campbell, Duncan D., Col., Vet. Adm. Facility, N. Little Rock.
Harper, Edwin O., Lt. Col., Arkadelphia.
Hederick, Rogers, Major, 207 N. Broadway, Booneville.
Lamb, Jones W., Capt., 516 S. 5th St., Paragould.
Lynch, Harry O., Major, Hq. Ark CCC, Little Rock.
Turner, Wylie E. Jr., Capt., Piggott.

California

Agress, Clarence M., Capt., 920 Carrillo Dr., Los Angeles.
Anderson, Frank M., Capt., 1919 Wilshire, Los Angeles.
Baer, Irving N., Major, 1832 Winona Blvd., Los Angeles.
Bayer, Charles F., Col., Vet. Adm., Los Angeles.
Benioff, Mortimer A., Major, 105 Lake St., San Francisco.
Calcagno, Joseph S., Capt., 1042 Palm St., San Jose.
Colebaugh, Charles W., Lt. Col., Vet. Admin., Los Angeles.
Davis, Joseph H., Capt., 2211 Broderick St., San Francisco.
Derieux, G. H., Jr., Major, 1718 Garden St., Santa Barbara.
Dodd, Abby M., Major, 947 W. 8th St., Los Angeles.
Fuiks, Dellivan M., Col., 2216 Ninth Ave., Sacramento.
Hagen, Earl O., Capt., 1605 Middleton St., Hanford.
Hand, Mark M., Major, 3320 Broderick St., San Francisco.
Hazel, James K., Capt., 448 Hobart Ave., San Mateo.
Irvine, Samuel R., Major, 612 N. Alpine Dr., Beverly Hills.
Johnson, Raymond L., 1st Lt., 317 E. Olive St., Corona.
Krivonos, A. F., Major, 135 S. Mansfield Ave., Los Angeles.
Lacoe, Jeremiah R., Capt., 621 S. Fairfax Ave., Los Angeles.
Langsdorf, Gordon C., Major, 357 W. 10th St., Claremont.
Leonard, Maurice E., Major, 1835 Vallajo St., San Francisco.
Mounce, Chanceford A., Major, 3433 Century Blvd., Lynwood.
Nelson, Clarence, Major, 55 Allston Way, San Francisco.
Newman, T. R., Capt., 1400 Fell St. (S. P. GH), San Francisco.
Portis, Robert B., Capt., 1715 Ambassador Dr., Beverly Hills.
Raitt, Albert E., Major, 1501 W. Main St., Visalia.
Riordan, James J., Capt., 450 Sutter St., San Francisco.
Sarkisian, Milton V., Major, 2770 Marty Way, Sacramento.
Shier, Cyril W., Major, 224 S. 1st Ave., Arcadia.
Shuman, John W., Jr., Capt., 507 11th St., Santa Monica.
Toy, Arthur J., Capt., 553 Buena Loma Ave., Altadena.
Tretheway, Lester E., Major, 945 N. El Dorado St., Stockton.
Ullrich, Fred D., Capt., 7788 Lookout Dr., La Jolla.

Colorado

Armstrong, Hiram E., Major, Pueblo.
Barber, Donn J., Major, 1811 13th Ave., Greeley.
Burner, Jacob O. Jr., Capt., Nucla.
Crary, Richard H., 1st Lt., 965 S. York St., Denver.
Gersh, Isadore, Major, 1684 Harrison St., Denver.
Hawlick, Garfield F., Capt., 431 Lincoln, Pueblo.
Hodges, Dean W., Major, 1616 Kearney St., Denver.
McBrayer, Benjamin E., Capt., 630 W. Orman Ave., Pueblo.
Nelson, John M., Capt., 112 Marion St., Denver.
Page, Donald F., Major, 515 Mapleton Ave., Boulder.
Smith, George P., Capt., 1455 Monroe St., Denver.

Connecticut

Aiello, Louis J., Capt., 37 Maple St., New Haven.
Dichter, Irving S., 1st Lt., 33 Forest St., Stamford.
Harvey, Edward R., Capt., 87 Washington Ave., Seymour.
Lafemina, Nicholas F., Capt., 60 Dawes Dr., Hamden.
Ragus, Celia E., Capt., 405 Coran Ave., Shelton.
Redlich, Frederick C., Capt., Gaylord Farm Sanit., Wallingford.
Rubinow, Merrill B., Major, 192 E. Center St., Manchester.
Sabloff, Jack, Capt., 540 Prospect Ave., Hartford.
Townsend, W. C., Lt. Col., 48 Middlebrook Rd., W. Hartford.
Winters, Hyman, Capt., 405 N. Main St., Bristol.
Yohn, Albert K., Capt., Rt. 2, Norwalk.

Delaware

Dobson, Leslie M., Major, Millsboro.
James, Oliver A., Capt., 317 S. Walnut St., Milford.
Kurland, Abram B., Capt., 1025 Brandywine Blvd., Wilmington.
Lessey, Arthur G., Major, 304 Hillcrest Ave., Wilmington.
Urie, James W., Capt., 207 S. Maryland Ave., Wilmington.

District of Columbia

Atkinson, Walter, Lt. Col., 1835 Eye St. N.W., Washington.
Berman, Leonard S., Capt., Woodley Pk. Towers, Washington.
Blumenthal, Basil, Major, 3604 Mass. Ave. N.W., Washington.
Damian, Julius D., Capt., 2700 Q St. N.W., Washington.
Gordon, A. B., Capt., 2812 Connecti't Ave., N.W., Washington.
Harrison, Malcolm D., Major, 4540 49th St. N.W., Washington.
Kramm, A. H., Capt., 3228 Woodley Rd., N.W., Washington.
Lowry, Sidney W., Capt., Rt. 1, Box 269, Benning Station.
Simpson, G. V., Lt. Col., 1715 Hokan Rd., N.W., Washington.
Stebbing, Philip A. E., Major, 800 N. Carolina Ave. S.E., Washington.
Weiner, M. A., Capt., USVA, Mt. Alto Hosp., Washington.
Welebir, Andrew J., Capt., 2400 Tilden St., N.W., Washington.

Florida

Cobb, Alva T., Major, 1404 Cherokee Ave., Gainesville.
Costantino, Eugene F., Capt., 2808 12th St., Tampa.
Dell, James M. Jr., Major, Rt. 2, Box 61C, Gainesville.
Dix, John W., Capt., 2500 Coral Way., Miami.
Farber, William P., Major, 3649 Foster Mill, St. Petersburg.
Jahn, Robert J., Capt., 203 Ave. C, N.E., Winter Haven.
Keramidas, T. C., Lt. Col., 220 First St., N., Winter Haven.
Newell, Charles E., Major, 921 N.W. 29th Ave., Miami.
Nix, Harold G., Major, 2109 Bayshore Blvd., Tampa.
O'Connor, James B., Capt., Florida State Hosp., Chattahoochee.
Ramsey, Russell W., Capt., 108 E. Park Ave., Winter Park.
Tompkins, Raymond D., Lt. Col., Vet. Adm. Facility, Bay Pines.
Wallace, Arthur J., Jr., Major, Box 68, Lutz.
Zivitz, Nelson, Major, 311 Lincoln Rd., Miami Beach.

Georgia

Baker, William R., Lt. Col., Grady Hospital, Atlanta.
Bell, John A., Jr., Lt. Col., Dublin.
Bleich, Jack K., Lt. Col., 778 Brookridge Dr., N.E., Atlanta.
Bosworth, Edward L., Major, 506 E. 9th St., Rome.
Charlton, Thomas J., Major, 118 E. 35th St., Savannah.
Cohen, Isidore R., Capt., 354 Loomis Ave. S.E., Atlanta.
Coles, William C., Major, University Hosp., Augusta.
Eldridge, Franklin G., Lt. Col., 1417 Williams St., Valdosta.
Fillingim, David B., Capt., 716 E. 52d St., Savannah.
Feild, William M., Capt., 530 3d Ave., Albany.
Gillespie, Robert H., Capt., Grady Hosp., Atlanta.
Johnson, Edward G., Capt., 3d St., Manchester.
Levy, Tracy, Capt., Hinesville.
Pacifici, Joseph, Capt., 205 E. 54th St., Savannah.
Quillian, William B., Jr., Major, 118 Market St., Cartersville.
Read, Benjamin S., Col. 993 Stovall Blvd., Atlanta.
Sadove, Max S., Capt., 1105 E. 38th St., Savannah.
Sams, Frank H., Capt., Reynolds.
Schuessler, George D., Major, 2105 Wynnton Rd., Columbus.
Talmadge, Harry E., Major, Tip Top, Athens.
Trimble, W. H., Major, 715 Flat Shoals Ave., S.E., Atlanta.
Westerfield, Charles W., Capt., University Hosp., Augusta.
Williams, Alton F., Major, 225 Lee St., Metter.

Idaho

Kerns, Marion J., Capt., Fairfield.
Sawyer, Malcolm H., Major, Twin Falls.
Zeschin, Oscar L., Capt., American Falls.

Illinois

Armstrong, Ray C., Major, 525 Robeson Bldg., Champaign.
Barkett, Soddie J., Major, 3500 Washington Ave., Cairo.
Baxter, Edward S., Capt., 4043 Central Ave., Western Springs.
Bloomenthal, Ernest David, Major, 5111 Drexel Ave., Chicago.
Bowman, Harold S., Lt. Col., Greenfield.
Bradburn, George Burmell, Major, 222 E. Chestnut St., Chicago.
Cohn, Arnold M., Major, 3901 N. Kimball Ave., Chicago.
DeBartolo, Hansel M., Capt., 523 S. Lake St., Aurora.
Devries, Jerry, Capt., 355 Lawrence Ave., Marseilles.
Ertin, Oscar L., Capt., 6350 N. Clark St., Chicago.
Farmer, Donald F., Capt., 1912 W. 103 St., Chicago.
Feinberg, Milton, 1st Lt., 5402 Ingleside Ave., Chicago.
Fox, Robert T., Capt., 816 Milburn St., Evanston.

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PHYSICIANS SEPARATED FROM SERVICE

Illinois—Continued

Gawne, Charles B., Capt., 418 S. Harvey Ave., Oak Park.
Gillespie, James B., Major, 602 W. University, Urbana.
Graham, James E., Lt. Col., 1509 Whittier, Springfield.
Hall, Byford I., Capt., 343 N. Washington St., DuQuoin.
Harper, Paul V. Jr., Capt., 5748 Drexel Ave., Chicago.
Hartman, Henry A., Capt., 1147 S. Poplar Ave., Kankakee.
Hastings, Donald W., Lt. Col., 450 E. Illinois Rd., Lake Forest.
Ippolito, Anthony S., Capt., 818 W. Cabrini St., Chicago.
Johnstone, John Hick, Major, 1005 Walnut St., Eldorado.
Jones, Alfred E., Major, 5346 Cornell Ave., Chicago.
Kahn, Jack L., Capt., 1318 Hyde Park Blvd., Chicago.
Keating, Donald J., Capt., 113 N. Hill St., Momence.
Koransky, David S., Capt., 9 S. Kedzie Ave., Chicago.
Krajec, Andrew, Capt., McLeansboro.
Lang, Morris, Capt., 1090 E. Duane Blvd., Chicago.
Law, Stanley G., Capt., 215 N. Huffman St., Naperville.
Levitin, Emil D., Capt., 907 S. Wolcott Ave., Chicago.
Livingston, A. Edward, Capt., 608 Lafayette Apts., Bloomington.
Loritz, Anthony F., Major, 4248 Wentworth Ave., Chicago.
Love, Loren L., Major, 603 N. Victor St., Christopher.
Lubin, Jerome J., 1st Lt., 6423 S. California Ave., Chicago.
MacLeod, Sidney J., Lt. Col., 7230 Paxton Ave., Chicago.
Mahru, Meier, Capt., 219 W. State St., Sycamore.
Merär, Thomas J., Major, 535 Briar Pl., Chicago.
Nadeau, Oscar E., Lt. Col., 747 Hutchinson St., Chicago.
Neeseman, Arthur C., Major, Fox Lake.
Oberhill, Harold R., Capt., 1212 57th Ave., Cicero.
Peltzer, Wesley E., Major, Mount Vernon.
Perkins, Robert D., 1st Lt., 2307 16th Ave., Moline.
Pixley, John S., Capt., 514 E. Seminary St., Wheaton.
Plaut, Adrian A., Capt., 5100 Kimbark Ave., Chicago.
Rosenwasser, Henry, Capt., 6165 Winthrop Ave., Chicago.
Ritter, Jerome, Capt., Vet. Adm. Facility, Danville.
River, Louis P., Lt. Col., 318 Linden Ave., Oak Park.
Roberts, Ralph C., Capt., 146 Clyde Ave., Evanston.
Sanfilippo, Girolamo J., Capt., 5125 W. Division St., Chicago.
Schmidt, William B., Capt., 302 S. Cross, Robinson.
Schoenwetter, Arthur H., Major, 6859 Crandon Ave., Chicago.
Silverstein, Norman, Major, 1813 S. Trumbull Ave., Chicago.
Smith, Edward C., Capt., 11208 Indiana Ave., Chicago.
Stillerman, Manuel L., 1st Lt., 5532 Ingleside Ave., Chicago.
Talbot, Charles C., Capt., 62 E. Division St., Chicago.
Thomas, Morris E., Capt., 303 E. Superior St., Chicago.
Tobin, James W., Major, 164 Division St., Elgin.
Tucker, Joseph, Capt., 167 N. Taylor Ave., Oak Park.
Vicek, Anton J., Capt., 3000 S. Pulaski Rd., Chicago.
Wagner, Leonard M., Major, 4901 N. Seeley Ave., Chicago.
Wald, Sidney I., Major, 307 E. Main St., DuQuoin.
Weihe, Arthur R., Capt., 850 N. Elmwood Ave., Oak Park.
Weinberger, L. M., Lt. Col., 5517 S. Everett Ave., Chicago.
Yaeger, Harry A., Capt., 1605 N. State St., Litchfield.

Indiana

Adair, Samuel L., Major, 111 W. Court Ave., Jeffersonville.
Appel, William P., Capt., St. Joseph's Hosp., Ft. Wayne.
Bretz, John M., Capt., City Hosp., Indianapolis.
Burkhardt, Boyd A., Major, 328 N. West St., Tipton.
Caplin, Irvin, Capt., 2208 Park Ave., Indianapolis.
Carter, Jean V., Major, 315 W. Washington St., Tipton.
Daugherty, Fred N., Major, 415 W. Main St., Crawfordsville.
Dragoo, Farrol A., Major, 324 N. 5th St., Middletown.
Evans, Paul V., Capt., 1649 N. Alabama, Indianapolis.
Fagaly, William J., Major, 57 Oakey Ave., Lawrenceburg.
Hall, Orville A., Capt., 3121 W. Gilbert St., Muncie.
Hare, Earl H., Lt. Col., 5524 N. Delaware St., Indianapolis.
Hedgcock, Robert A., Capt., 857 E. Clinton St., Frankfort.
Hickman, Archibald L., Jr., 1st Lt., 34 Ind. Ill. Pk., Hammond.
Kraft, Bennett, Capt., 7025 Washington Blvd., Indianapolis.
McNaughton, Lawrence M., Major, 703 Main St., Petersburg.
Muller, Lullus P., Capt., Fowler.
Nesbit, Leonard L., Capt., 2002 W. 14th St., Anderson.
Regan, George L., Capt., Sellersberg.
Shanklin, James G., Capt., 7612 Monroe Ave., Hammond.
Smith, Robert A., Lt. Col., 1128 Bundy Ct., New Castle.
Thompson, John M., Lt. Col., 320 N. Jackson, Bremen.
Weigand, C. G., Lt. Col., 5234 N. Capitol Ave., Indianapolis.
Wood, Donald E., Major, 6142 Harvard Ave., Indianapolis.

Iowa

Agnew, Lloyd C., Capt., University Hospital, Iowa City.
Boden, Herbert N., Capt., Truro.
Clark, Richardson E., Capt., 215 N. Franklin St., Manchester.
Elliott, Vance J., Major, Knoxville.
Fellows, Joseph G., Major, 1017 Burnett, Ames.

Iowa—Continued

Haines, Diedrich J., Capt., 11 35th St., Des Moines.
Henderson, Lauren J., Major, 305 W. 22d St., Cedar Falls.
Henning, Garold G., Major, Milford.
Kugler, Frank E., Major, Childrens Hosp., Iowa City.
Larson, Marvin O., Lt. Col., Hawarden.
Leehey, Paul J., Major, 201½ 1st, E., Independence.
Mackie, Donald G., Capt., 213½ N. Main St., Charles City.
Parkin, George L., Capt., 911 Rider St., Iowa City.
Patrick, John E., Capt., 203 N. 3d Ave., Marshalltown.
Ristine, Leonard P., Major, 400 E. Washington, Mt. Pleasant.
Todd, Donald W., 1st Lt., 306 6th St., Guthrie Center.
Warren, Robert F., Major, 1145 E. College St., Iowa City.

Kansas

Baird, Cecil D., Capt., Eureka.
Bosse, Frank K., Major, 1301 Riverview Dr., Atchison.
Cramer, Guy W., Major, 1726 Clark St., Parson.
Gier, Jacob B., Capt., Vet. Adm. Facility, Wadsworth.
Keeler, James E., Lt. Col., 1321 E. 28th St., Kansas City.
Leigh, Lawrence E., Capt., 1700 Louisiana, Lawrence.
McCarty, Dale C., Lt. Col., 320 N. Springfield Ave., Anthony.
McIlvain, Guy B., Capt., 515 Lane St., Clay Center.
Neas, Ingall H., Major, 2925 N. 27th St., Kansas City.
Oltman, Theodore V., Major, 723 Oak, Newton.
Pearce, Albert R., Lt. Col., Vet. Adm. Facility, Wichita.
Reid, James A., Major, 225 W. Park, Pittsburg.
Shaw, Darrel T., Capt., 1148 Rowland Ave., Kansas City.
Thorpe, Francis A., 1st Lt., 420 Stout St., Pratt.
Todd, J. G., (colored) 1st Lt., 3505 N. 27th St., Kansas City.
Watson, James D., Capt., Claflin.

Kentucky

Abell, Joseph S., Capt., 3219 Linnet Rd., Louisville.
Atkinson, Willam B., Major, Campbellsville.
Ballard, Gyrlee T., Capt., Burgin.
Blackerby, James, Major, Stanford.
Brumback, Kenneth W., Capt., 508 E. Pike St., Cynthiana.
Gardner, Richard W., Capt., 4000 Grandview Dr., Ashland.
Green, Norval E., Capt., Benton.
Hermann, George J., Capt., 17 E. 6th St., Newport.
Hyman, Maurice, Capt., Crittenden.
Keaney, John M., Jr., Major, 1841 Roanoke Ave., Louisville.
McCandless, Harvey G., Major, 9 Dumfries Ave., Ft. Thomas.
Messer, Clarence R., Capt., 709 Eversole St., Hazard.
Phillips, Thomas L., Jr., Capt., Kuttawa.
Reed, George C., Capt., Willisburg.
Rulander, Fred W., Capt., 824 Cherokee Rd., Louisville.
Seay, Horace H., Capt., 120 E. Oak St., Louisville.
Thurman, David H., Capt., Gen. Hosp., Louisville.
Tracy, Edward J., Capt., 1500 Castlewood Ave., Louisville.
Wahle, Livingston A., Capt., 124 S. Central Ave., Somerset.
Warfield, Robert B., Capt., 221 Chanault Rd., Lexington.

Louisiana

Abramson, Samuel R., Capt., Touro Infirmary, New Orleans.
Bayon, Henry John, Major, 2213 Napoleon Ave., New Orleans.
Black, Charles L., Major, Coushatta.
Bourgeois, Ralph L., Capt., 121 Jackson St., Lafayette.
Breaux, Edgar P. Jr., Capt., Charity Hosp., New Orleans.
Cohn, Harold S., Capt., Vet. Adm. Facility, Alexandria.
Craighead, Claude C., Major, Athens.
Crain, Clifford W., Capt., Bogalusa.
DeMahy, Bernard M., 1st Lt., Charity Hosp., New Orleans.
Diaz, Walter P., Major, Charity Hosp., New Orleans.
Dyer, John L., Major, Touro Infirmary, New Orleans.
Foret, Marcel J., Major, 2810 Napoleon Ave., New Orleans.
Funk, Barclay, Major, 1838 Vance Ave., Alexandria.
Giles, Elbert J., 1st Lt., 1430 Tulane Ave., New Orleans.
Howell, James M., 1st Lt., P. O. Box 65, New Iberia.
Jones, Frank J., 1st Lt., 810 Park Blvd., Baton Rouge.
Jones, Jack Reiley, Capt., 1202 Convention St., Baton Rouge.
Kron, J. L. Jr., Major, 1228 Elysian Field Ave., New Orleans.
Meltzer, Leonard, 1st Lt., 406 Chartres St., New Orleans.
Montagnet, J. M., Jr., Major, Charity Hospital, New Orleans.
Netterville, Rush E., Major, Huey P. Long Hosp., Pineville.
Richard, Golden G., Major, Lake Arthur.
Robinson, Melvin D., 1st Lt., Greenwell Springs.
Silvey, Mortimer, Capt., Charity Hosp., New Orleans.
Ward, Thomas G., Lt. Col., Thibodaux.
Wild, Frederick A., Jr., Capt., 2468 Dauphine St., New Orleans.
Wilen, Carl J. W., Major, 1430 Tulane Ave., New Orleans.
Wood, Frank A., Capt., 3001 S. Grand St., Monroe.
Woody, Norman C., Jr., Capt., 1333 Jennings St., Shreveport.
Zengel, Harry L. Jr., Capt., 2575 Elder St., New Orleans.

PHYSICIANS SEPARATED FROM SERVICE

Maine

Geer, Charles R., Capt., 61 Hartley St., Portland.
Johnson, Gordon N., Major, 15 Richards St., S. Portland.
Love, Robert B., Major, 75 Main St., Gorham.
McWethy, Wilson H., Major, 284 Water St., Augusta.
Marshall, D. F., Capt., 9 Brookside Ave., Bar Harbor.
Thomas, Philip B., Capt., 489 State, Bangor.
Walker, Douglass W., Lt. Col., 4 Dunn St., Thomaston.

Maryland

Aungst, Melvin Rauch, Capt., Jessup.
Bennett, Henry G., Jr., Capt., 622 North Wash. St., Baltimore.
Birely, Morris F., Capt., Thurmont.
Blumberg, Joe M., Lt. Col., 3510A Liberty Heights, Baltimore.
Campbell, E. T., Major, 145 W. Washington St., Hagerstown.
Eaton, George O., Lt. Col., 4 E. Madison St., Baltimore.
Ferguson, Richard B., Capt., S. Baltimore G.H., Baltimore.
Gellis, Sydney S., Capt., 3909 Edgewood Rd., Baltimore.
Gershenson, David A., Capt., 3921 Norfolk Ave., Baltimore.
Greiner, Daniel J., Lt. Col., 4430 Marble Hall Rd., Baltimore.
Haines, Risley F., Capt., Baltimore City Hospital, Baltimore.
Keown, Lauriston L., Capt., 1938 Linden Ave., Baltimore.
Kurtz, Camille R., Capt., 8511 Bradmoor Dr., Bethesda.
Levin, Manuel, Capt., 4818 Reitertown Rd., Baltimore.
Lewison, Edward F., Major, 3203 N. Charles St., Baltimore.
Lidz, Theodore, Major, 1934 McElderry St., Baltimore.
Maryanov, Lawrence, Capt., Vienna.
Michaelson, Ernest, Major, 116 Defense Hwy, Bladensburg.
Newell, Edward T. Jr., Major, % Mr. E. W. Levering, Ruxton.
Ravitch, Marcus M., Major, 626 N. Washington St., Baltimore.
Reese, Frederic M., Major, Warren Rd., Phoenix.
Sickler, Donald R., Capt., 5741 Lambeth Rd., Bethesda.
Siwinski, Arthur G., Major, 226 Burke Ave., Towson.
Tommasello, Charles J., Capt., 1023 De Soto Rd., Baltimore.
Troland, Charles E., Major, 733 N. Broadway, Baltimore.
Ullrich, Henry F., Lt. Col., 4619 Northwood Dr., Baltimore.
Whitworth, Fuller B., Capt., Maryland Gen. Hosp., Baltimore.

Massachusetts

Albright, Edwin C., Major, 143 Park Dr., Boston.
Alley, Leon Arthur, Lt. Col., Lakeville State Sanat., Middleboro.
Block, Herman L., 1st Lt., 8 Wardman Rd., Boston.
Bluestein, Louis L., 1st Lt., 76 Washington St., Peabody.
Boyd, Phillips L., Lt. Col., 32 Burroughs St., Jamaica Plain.
Campbell, Donald E., Capt., Main St., Stockbridge.
Cary, Francis F., Lt. Col., Springfield, Hosp., Springfield.
Colcock, Bentley, Lt. Col., 77 Hartford St., Newton Highlands.
Coyne, Arthur A., Major, 49 Prospect Ave., Northampton.
Cutler, Joseph G., Lt. Col., 236 Lafayette St., Salem.
Davenport, Lowrey F., Major, 1101 Beacon St., Brookline.
Denhoff, Eric, Major, 10 Prospect St., Taunton.
Drosd, Rudolph E., Capt., Worcester State Hosp. Worcester.
Dugan, Hammond J., Major, 67 Lovett St., Beverly.
Durham, Richard A., Capt., 25 Argilla Rd., Ipswich.
Emerson, Charles P., J., Major, 206 Riverway, Boston.
Ferriter, Thomas F., Major, 10 Lincoln St., Westfield.
Ferry, Ronald M., Major, 966 Memorial Dr., Cambridge.
Gersh, David H., Capt., 1194 Mass. Ave., Arlington.
Giddings, Wooster P., Capt., 29 Berwick Rd., Newton Center.
Golden, Theodore S., Capt., 709 Centre St., Newton.
Harris, Oliver J., Major, 33d & Beacon St., Boston.
Hazard, John B., Lt. Col., 1153 Center St., Boston.
Hendry, John J., Major, 18 Tudor St., Chelsea.
Isenstein, Charles, Capt., 764 Morton St., Dorchester.
Kaufman, Kasper, 1st Lt., 103 Winthrop St., Roxbury.
Kimball, Stanley, Lt. Col., 1 Bates Ct., Dedham.
Klauber, Samuel, Capt., 103 Marlboro St., Chelsea.
Leadbetter, W. F., Major, 88 Lexington Ave., Needham Hts.
Lentino, Joseph W., Capt., 85 Walnut St., Clinton.
MacKillop, John A., Major, 381 Broadway, Cambridge.
May, Charles D., Lt. Col., 15 Monmouth Ct., Brookline.
McSweeney, Timothy H., Capt., 155 Boston Rd., Springfield.
Nichols, Arthur A., Capt., 66 Highlands Ave., Newtonville.
Niemiro, Bernard J., Capt., 207 Granville Rd., Westfield.
Ohman, Richard J., Capt., 25 Franklin St., Gardner.
Oskar, Paul A., Capt., 60 Bradford, Lawrence.
Pastorello, Ernest J., Capt., 41 E. Central, Franklin.
Phillips, Saul H., Capt., 15 Clarkwood St., Boston.
Quimby, William C., Jr., Capt., 83 Penniman Rd., Brookline.
Rappeport, Arthur, Capt., 54 Russell Park, Quincy.
Segal, Joseph N., Capt., 15 Netherlands Rd., Brookline.
Sheehan, John D., Capt., 56 Lexington Rd., Concord.
Teahan, William W., Capt., 217 Essex St., Holyoke.
Walker, James C., Major, 36 W. Newton St., Boston.
White, George, Capt., 75 Centre St., Brookline.

Michigan

Asline, John N., Major, 406 Pine St., Essexville.
Avery, Noyes L., Jr., Major, 601 Plymouth Rd., Grand Rapids.
Bauer, Gerhard H., Major, University Hosp., Ann Arbor.
Boccia, James J., Capt., 420 Calvin, Grosse Pointe Farms.
Christensen, Robert C., Capt., Harper Hospital, Detroit.
Conway, William S., Capt., 423 Michigan St., Petoskey.
Dardas, Michael J., Capt., 704 S. Hampton St., Bay City.
Dunlap, Gregg L., Capt., Rt. 5, Pontiac.
Easley, John H., Major, W. J. Seymour Hosp., Eloise.
Fenton, Meryl M., Capt., 18248 Pennington Dr., Detroit.
Fischer, Willard E., Capt., 193 Clark St., Wyandotte.
Green, Benjamin G., Capt., 536 Green St., South Haven.
Gullickson, Miles J., Capt., 641 Lake Ave., Ironwood.
Harris, Herbert W., Major, 301 Seymour Ave., Lansing.
Holstein, Arthur P., Capt., 12910 Visger Rd., Detroit.
Israel, Barney B., Major, 17560 Santa Rosa, Detroit.
Jay, Baird D., Major, 3329 Grand Ave., W., Detroit.
Kasabach, Harry Y., Major, 1003 E. Huron St., Ann Arbor.
Kingsley, Paul C., Major, 100 N. Broad St., Battle Creek.
Lemmon, Charles E., Lt. Col., 3210 Waverly, Detroit.
Lipton, Raymond F., Capt., 3298 Webb, Detroit.
McBridge, John R., Capt., 914 Liberty St., Lapeer.
MacGregor, John R., Capt., 226 Church St., Parchment.
Moore, Gregory P., Major, 115 S. Mitchell St., Cadillac.
Murphy, John M., Major, 18025 Birchcrest Dr., Detroit.
Nielsen, Aage E., Capt., 1488 Collingwood Ave., Detroit.
Novak, Walter S., Capt., 8100 E. Jefferson, Detroit.
Olen, Alex, Capt., 5500 Harvard, Detroit.
Otis, Grant L., Lt. Col., 922 Oak Grove Rd., Jackson.
Pomeroy, Richard W., Capt., 5758 Devonshire Rd., Detroit.
Price, Leonard, Capt., 1282 Arthur St., Muskegon.
Rawson, Amos P., Capt., 114 E. Main St., Addison.
Reid, John G., Major, 79 Monterey Ave., Detroit.
Schroeder, C. F., Major 3157 Van Alstyne Ave., Wyandotte.
Shadley, Maxwell L., Capt., 32 Auburn Ave., Pontiac.
Shafer, Harold C., Major, 1503 Fifth Ave., Bay City.
Spohn, Earle W., Major, 414 Hendrie Blvd., Royal Oak.
Terwilliger, Edwin H., Major, 559 Monroe Blvd., South Haven.
Watts, F. B., Major, 1061 Oxford Rd., Grosse Pointe Woods.
Weaver, Thomas H., 1st Lt., 2800 W. Grand Blvd., Detroit.
Zbudowski, Myron R., Capt., 721 Emerson St., Detroit.

Minnesota

Allyn, Paul Richard, Jr., 1st. Lt., Mayo Clinic, Rochester.
Balkin, Samuel G., Major, 4829 15th Ave., S., Minneapolis.
Bowers, Gordon G., Capt., 5637 16th Ave. S., Minneapolis.
Evans, Edward T., Lt. Col., Rt. 9, S. Blake Rd., Minneapolis.
Fingerman, David L., Capt., 1009 Russell Ave. N., Minneapolis.
Finkelnburg, William O., 1st Lt., 363 W. 7th St., Winona.
Giebink, Robert R., Capt., 4404 Harriet Ave. S., Minneapolis.
Hanson, Carl A., Capt., 605 E. 14th St., Minneapolis.
Hottinger, Raymond C., Major, Janesville.
Johnson, Robert E., Major, 4713 Meadow Road, Minneapolis.
Kaplan, David H., Capt., 199 Aurora Ave., St. Paul.
Killins, Jack A., Major, Mayo Clinic, Rochester.
Lott, Frederick H., Capt., Ancker Hosp., St. Paul.
Melancon, Joseph F., Major, Rt. 9, St. Paul.
Musty, Nicholas J., Capt., 2328 Seabury Ave., Minneapolis.
Neal, Joe M., Major, 4915 1st Ave. S., Minneapolis.
Pennington, Robert E., Major, Mayo Clinic, Rochester.
Perkins, Marsh O., Capt., 2190 Sargent Ave., St. Paul.
Preston, Frederick W., Capt., Mayo Clinic, Rochester.
Rogne, William G., Capt., Spring Grove.
Spano, Joseph P., Capt., 2840 Stinson Blvd., N.E., Minneapolis.
Street, Bernard, Major, 1900 Minnesota Blvd., St. Cloud.
Swedenburg, Paul A., Major, Swanville.
Trytten, Edwin G., 1st Lt., 2423 W. 6th St., Duluth.
Vandersluis, Charles W., Capt., 510 Beltrami Ave., Bemidji.
Van Hale, Laurence A., Major, 727 15th Ave. S.E., Minneapolis.
Walker, George L., Capt., 635 W. Broadway, Winona.
Walsh, William T., Capt., 4210 Sunnyside Rd., Minneapolis.
Yaffe, Henry I., Capt., 620 Penn Ave., N. Minneapolis.
Ziskin, Thomas, Major, 900 W. Minnehaha Pky., Minneapolis.

Mississippi

Atkinson, Jack A., Capt., Brookhaven.
Burns, Ellis P., Lt. Col., Vet. Adm. Facility, Biloxi.
Donald, Robert L., Capt., 2503 29th Ave., Meridian.
Edmondson, Joseph S., Capt., Vardaman.
Hutchins, James D., Major, Crystal Springs.
Lee, Edwin A. (colored), Capt., Route 1, Box 82, Indianola.
Myers, Onnie P., Major, Moddy & Gresham, Indianola.
Warriner, Richard B. Jr., Major, Linden St., Corinth.
Watkins, John W., 1st Lt., Quitman.

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PHYSICIANS SEPARATED FROM SERVICE

Missouri

Baer, Alvin J., Major, 4144 Warwick Blvd., Kansas City.
Bennett, James D., Capt., Cole Camp.
Carmichael, Francis A. Jr., Major, 1634 W. 51st, Kansas City.
Cone, Alfred J., Major, 4952 Maryland Ave., St. Louis.
Drake, Truman G., Jr., Lt. Col., 4515 Lindell Blvd., St. Louis.
Faxon, Donald E., Major, 819 Cumberland Dr., Lemay.
Hanlon, Thomas J., Capt., 6613 Clayton Rd., Clayton.
Harding, Carl W., Major, 1487 E. 76th St., Kansas City.
Jenkins, Paul A., Capt., 115 Blvd., Lebanon.
Judy, Joseph D., Capt., 150 N. Clay, Ferguson.
Kelly, Thomas J., Major, 208 Hub, Jefferson City.
Lee, Albert R., Capt., 1515 LaFayette Ave., St. Louis.
Limauro, Andrew B., Capt., St. Mary's Hosp., St. Louis.
Morris, John R., Capt., 8209A N. Broadway, St. Louis.
Myers, H. A., Major, Veterans Adm. Fac., Jefferson Barracks.
Platz, John H., Capt., 111 S. Main St., Carrollton.
Raines, Oney C., Jr., Major, 6760 Chamberlain Ave., St. Louis.
Reitz, Carl H., Capt., 3422 Highland St., Kansas City.
Schweitzer, Fred C., 1st Lt., 615 E. Elm, Springfield.
Smith, James O., Capt., 209 S. Second, Clinton.
Virant, John A., Major, 2 Picardy Lane, Clayton.
Wallace, Hilen K., Lt. Col., 301 N. 8th St., St. Joseph.

New Jersey

Abrams, Benjamin P., Capt., 9209 Hudson Blvd., North Bergen.
Alfano, Nicholas F., Major, 15 Monticello Ave., Newark.
Blatt, David S., Capt., 960 Madison Ave., Elizabeth.
Breslow, Alexander E., Capt., 930 Pierpont St., Rahway.
Brown, Leonard, Capt., 190 Park St., Ridgefield Park.
Cappiello, William A., Capt., 352 Seventh Ave., Newark.
Chappelle, LeRoy P. (colored), Capt., 521 E. 2d St., Plainfield.
DeBold, Charles Jr., Capt., 52 Washington Ave., Hillsdale.
Diener, Samuel, Capt., 14 Clinton Pl., Newark.
Elliot, Frazier J., Major, 11 N. 2nd St., Hammonton.
Fagley, Raymond C., Major, Vet. Adm. Facility, Lyons.
Feliciano, Vincent, Capt., 33 N. 8th St., Hawthorne.
Gessner, Gerard R., Lt. Col., 28 S. 3d Ave., Highland Park.
Gilpin, Fletcher, Major, 118 North Ave., W. Cranford.
Halbstein, Bernard M., Capt., 138 Bath Ave., Long Branch.
Handler, Harry, Capt., 305 York St., Jersey City.
James, John T., 1st Lt., 57 Wiggins St., Princeton.
Joffe, Sidney H., Major, 131 Rock Road, Glen Rock.
Koch, William J., Major, 609 Bendermere Ave., Interlaken.
Kraemer, Manfred, Major, 35 Nairn Pl., Newark.
Kwint, Joseph A., Major, 18 Willow Ave., North Plainfield.
Levinson, Reuben 1st Lt., 241 State St., Perth Amboy.
Liddell, Raymond N., Capt., 150 W. High St., Somerville.
Marrella, Louis F., Capt., 101 Lafeyette St., Jersey City.
Mastroianni, Frank M., Capt., 901 Colonial Ave., Union.
McLaughlin, John W., 1st Lt., 34 W. 32d St., Bayonne.
Metz, Henry, Lt. Col., 384 Fairmount Ave., Jersey City.
Pelliciari, D. Donald, Capt., 29 S. Munn Ave., East Orange.
Pierson, Joseph R., Lt. Col., 64 W. Broad St., Hopewell.
Robertson, E. V., Capt., 171 Diamond Bridge Ave., Hawthorne.
Rolnick, Meyer H., Capt., 482 N. Clinton Ave., Trenton.
Shumway, Stanley H., Capt., Paterson Gen. Hos., Paterson.
Stateman, Bernhardt J., Major, 639 Hansbury Ave., Newark.
Turlowski, Carl F., Capt., 627 N. Olden Ave., Trenton.
Tender, Isaac J., Major, Jersey City Med. Cen., Jersey City.
Vespignani, Pasquale M., Capt., 287 4th St., Jersey City.
Wainright, Melvin A. R., Capt., 4 Patterson Ave., Shrewsbury.
Yellin, Charles H., Major, 525 E. 2d Ave., Roselle.
Zigarelli, Joseph F., Major, 183 E. 16th St., Paterson.

New York

Adelson, Edward R., Capt., 170 W. 76th St., New York.
Adlerman, Edwin J., Capt., 19 E. 88th St., New York.
Antony, Arthur Theodore, Capt., 472 Wash. Ave., Brooklyn.
Ascher, J. J., Capt., % Mrs. Rodenberg, 1995 Dela. Av., Buffalo.
Babcock, Howell E., Major, Hotel McAlpin, New York.
Badeen, Michael J., Capt., Millerton.
Berkowitz, Milton, Major, 125 Ocean Ave., Brooklyn.
Bird, Samuel D., Major, 86 N. Long Beach Ave., Freeport.
Brancato, Santo F., 1st Lt., 2103 Clifford Ave., Rochester.
Campbell, Louis T., Capt., 11 Kiwassa Rd., Saranac Lake.
Candela, Pompeo B., Capt., 576 18th St., Brooklyn.
Clough, Kenneth M., Major, 11 Oak St., Plattsburg.
Cohen, Nathaniel J., Capt., 1760 Seward Ave., Bronx.
Collins, Stuart V., Major, Main St., Allegany.
Colonna, Anthony R., 1st Lt., 140 Menahan St., Brooklyn.
Culver, Wesley Y., Major, Westhampton Beach, Long Island.
Davis, Royal S., Capt., 50 President St., New Rochelle.
D'Agati, Vincent C., Major, 3228 81st St., Jackson Heights.
DeHoff, John N., Major, 144-79 38th Ave., Flushing.

New York—Continued

Engelhardt, David M., Major, 2829 W. 23d St., Brooklyn.
Estrin, Joseph, Capt., 5100-15th Avenue, Brooklyn.
Feinstein, Irving, 1st Lt., 341 W. 45th St., New York.
Fertig, Samuel, Major, 446 Kingston Ave., Apt. 22B, Brooklyn.
Frankel, Jesse M., Capt., 108 Rugby Rd., Brooklyn.
Gann, Henry, Major, 75 Linda Ave., White Plains.
Ghent, Oliver T., Capt., 4 W. Buffalo St., Warsaw.
Gossman, Hans P., Capt., 327 E. Sidney Ave., Mt. Vernon.
Grant, Austin R., Capt., 675 N. Terrace Ave., Mt. Vernon.
Hand, Morton H., Lt. Col., 575 Ocean Ave., Brooklyn.
Hanratta, Eugene J., Jr., Capt., 1433 First Ave., Watervliet.
Hayden, Robert S., Major, 86 Court St., Saratoga Springs.
Henry, William, Major, 3175 Grand Concourse, Bronx.
Hixson, Edward G., Major, 123 Jenkins St., Oneida.
Hyman, Irving, Major, 621 Linwood Ave., Buffalo.
Iselin, John H., Jr., Capt., 138 E. 74th St., New York.
Israel, Martin, Major, 325 W. 45th St., New York.
Jenkins, Paul B., Major, 141 Main St., Binghampton.
Johnston, Milton E., Capt., 5 Webb Rd., N., Tarrytown.
Kahan, Herbert, Capt., 45 Rhodes St., New Rochelle.
Kaufman, James, 1st Lt., 87-02 143 St., Jamaica.
Keith, Rockwood, Major, 24 Beech Hill Rd., Scardale.
Klotz, Solomon D., Capt., 350 E. 77th St., New York.
Kolbe, Henry W., Major, 182-09 Dalny Rd., Jamaica.
Kyle, George B., Capt., 2745 Reservoir Ave., Bronx.
Lasoff, Martin E., Capt., 583 Barbey St., Brooklyn.
Lattman, Morris, Capt., 444 Central Park W., New York.
Levine, Samuel R., Capt., 838 W. End. Ave., New York.
Lieberman, Samuel, Capt., 2090 Morris Ave., Bronx.
Litter, Leo, Major, 2608 Creston Ave., Bronx.
Long, Hugh K., Major, 26 E. 11th St., New York.
Lyster, Norman C., Capt., 62 S. Broad St., Norwich.
McCabe, John H., Major, 199 Southside Pkwy., Buffalo.
Mainella, Frank S., Capt., 135 Arlington Ave., Brooklyn.
Mancusi-Ungaro, L. E., Capt., Kings County Hosp., Brooklyn.
Meisel, Herman J., Major, 154 Monroe St., Brooklyn.
Mintz, Nathan, Major, 25 E. 86th St., New York.
Montagnino, Ignatius J., Capt., 1415 74th St., Brooklyn.
Novis, George, Capt., 297 E. 46th St., Brooklyn.
O'Brien, John R., Capt., 951 Niagara Ave., Niagara Falls.
Pecoraro, Salvatore C., Capt., 1438 79th St., Brooklyn.
Philo, Seymour S., Capt., 412 W. End Ave., New York.
Ressler, Hyman, Capt., 49-15 14th Ave., Brooklyn.
Richeimer, Leonard L., Capt., 33-38 150th Pl., Flushing.
Robbins, Guy F., Major, 303 E. 20th St., New York.
Rubler, Herman, Capt., Montauk Hwy., Hampton Bays.
Rustin, Howard F., Lt. Col., 344 Ovington Ave., Brooklyn.
Sandzen, Sigurd C., Lt. Col., Ft. of Barry Ave., Mamaroneck.
Savitt, Robert A., Major, Creedmor State Hosp., Queens Village.
Schwartzman, J. D., Capt., 37-19 73d St., Jackson Heights.
Selinger, Alfred G., Capt., 1111 Madison Ave., New York.
Smetana, Hans F., Lt. Col., 255 Haven Ave., New York.
Stern, Charles, Major, 454 43d St., Brooklyn
Stronglin, Harry, Capt., 143 Linden Blvd., Brooklyn.
Thompson, Marvin L., Capt., Davenport.
Tillou, Donald J., Lt. Col., 94 Durland Ave., Elmira.
Van Wie, William J., Capt., 151 Prospect Ave., Mt. Vernon.
Viola, Laurence E., Major, 85 Nelson Ave., Great Kills.
Weiss, Paul, Major, 5107 69th St., Woodside, Queens.
White, Thomas S., Capt., Franklin Ave., Millbrook.
Yetzer, William J., Capt., 36 Durham Ave., Buffalo.
Zaris, David, Capt., 1690 Longfellow Ave., Bronx.

Ohio

Abramson, Ira A., Col., 808 N. Crescent, Cincinnati.
Allenbach, Theodore C., Major, 128 Sheffield Rd., Columbus.
Bonnell, George H., Jr., Major, 606 High St., Worthington.
Borreson, Albert, Major, 607 Jefferson St., Greenfield.
Chapla, Albert B., Major, 2401 Elyria Ave., Lorain.
Cronin, John F., Lt. Col., 1808 Sutton Rd., Cincinnati.
Doering, John W., Major, 69 S. Market St., Logan.
Edwards, Charles W., Capt., 2719½ Sullivant Ave., Columbus.
Egbert, Clarence H., 1st Lt., 2139 Lewis Drive, Lakewood.
Fatum, Oscar J., Capt., 230 N. Washington St., Van Wert.
Furste, Wesley L., II, 1st Lt., 2930 Jefferson Ave., Cincinnati.
Gavin, James A., Capt., 2058 Brunswick Rd., East Cleveland.
Gould, Joseph I., Major, 2723 Monroe St., Toledo.
Graham, Paul J., Capt., 904 State Ave., Cincinnati.
Haubrich, Robert C., Major, 42 Town St., Pataskala.
Heyde, Edward C., Capt., 1740 Cleveland Road, Wooster.
Hicks, Warren W., Major, 2895 W. Broad St., Columbus.
Kaplan, Irwin, Capt., 692 Glenwood Ave., Cincinnati.
Keefe, John K., Capt., 1530 Northwood Dr., Cincinnati.
Kohrman, Benjamin M., Capt., W. Main St., Orwell.

PHYSICIANS SEPARATED FROM SERVICE

Ohio—Continued

Krakoff, Morris A., Capt., 818 Montrose Ave., Bexley.
Levine, Milton, Capt., 4312 Rhodes Ave., New Boston.
Longnaker, John W., Capt., 1630 Calif. Ave., Cincinnati.
McLin, William M., Capt., 800 Superior Ave., Dayton.
Mannino, Rosario G., Capt., 177 Judson Ave., Newark.
Munns, Thomas A., Major, RFD 1, Oxford.
Neidus, Morris W., Major, 367 Indianola Rd., Youngstown.
Neiswander, Allen C., Capt., Pandora.
Oliver, William S., Capt., 392 5th St., Middleport.
Phinney, James D., Major, 3676 Kendall Ave., Cincinnati.
Rogers, John A., Capt., 163 Indianolo Rd., Youngstown.
Sabin, Albert B., Lt. Col., Childrens Hosp., Cincinnati.
Schaiberger, George L., Capt., 502 Eleanor Ave., Toledo.
Torrence, John F., Capt., 33 E. Market St., Germantown.
Van Epps, Herbert F., Major, 235 W. Slingluff St., Dover.
Venar, Yasha A., Major., 1401 Oakridge Dr., Cleveland Hgts.
Walker, Glenn H., Major, 410 W. Main St., Woodville.
Weaver, Thomas A., Jr., Major, 2760 Madison Rd., Cincinnati.

Oklahoma

Bishop, Calmes P., Capt., Picher Hosp., Picher.
Duff, Kenneth R., Major, 712 B Ave., Lawton.
Gayman, Byron R., Major, Vet. Hosp., Muskogee.
Gill, Dan C., Capt., 1319 E. 6th St., Okmulgee.
Gordon, Douglas M., Lt. Col., 116 Glenside, Ponca City.
Hinson, Bruce R., Major, 1017 W. Wabash, Enid.
Knight, Claude B., Capt., 211 W. 2d St., Wewoka.
Kreger, Glenn S., Capt., 609 N. Main, Tonkawa.
Muntz, Earl R., Major, 525 S. Highland, Ada.
Parker, James H., Major, Vet. Adm., Muskogee.
Ricks, James R., Jr., Capt., 1005 Hill St., Oklahoma City.
Wilson, Jewell R., Lt. Col., Seminole.
Yeary, Edwin C., Major, Elmore City.

Oregon

Douglas, Earl W., Capt., RFD 11, Box 428, Portland.
Du Bois, Earl D., Lt. Col., 1020 S.W. Taylor St., Portland.
Fisher, Arthur A., Capt., 312 N. Main St., Lebanon.
Power, Frank K., Major, 1805 Center St., Salem.
Rich, David R., Major, 908 Main St., LaGrande.
Rodda, John S., Capt., 2648 N.E., Stuart Dr., Portland.
St Pierre, Roderick G., Lt. Col., 215 U.S. Ct. House, Portland.
Thorstenberg, Edward, Capt., 5th & F Sts., Grants Pass.
Wall, Edward C., Major, Prineville.

Pennsylvania

Belber, Joseph P., Capt., 1537 W. Chew St., Philadelphia.
Bloom, Joseph Bender, Capt., 416 Oakland Ave., Pittsburgh.
Burtoff, Samuel B., Capt., 1104 N. 40th St., Philadelphia.
Chesler, William, Major, 268 W. Susquehanna, Philadelphia.
Cloud, Milton H., Lt. Col., 294 Morgantown St., Uniontown.
Connelly, Michael E., Capt., 447 W. State St., Sharon.
Delp, Charles W., Major, 38 N. 2d St., St. Clair.
Dittmar, Stuart W., Capt., Kenwood Rd., Chambersburg.
Endres, Warren Harris, Major, Fogelsville.
Evashwick, George, Major, 23 Prospect St., Turtle Creek.
Fishkin, Hymel, Lt. Col., 1913 Freeport Rd., Natrona Heights.
Gabreski, Thaddeus S., Major, 95 Spruce St., Oil City.
Gefter, William I., Capt., 1321 W. Roosevelt Blvd., Philadelphia.
Giordano, Anthony M., Capt., 522 N. 10th St., Reading.
Hackman, Stanley H., Capt., 39 E. Main St., Strasburg.
Heath, Frederick C., Capt., 918 Elizabeth Ave., Laureldale.
Herron, Carroll E., Major, 316 Lehigh St., Pittsburgh.
Horvath, D. C., Capt., 431 Division St., Bellevue, Pittsburgh.
Imbriglia, Joseph E., Major, 1845 S. 17th St., Philadelphia.
Kendrick, Oliver R., Lt. Col., 9 S. 2d St., Duquesne.
Kimbrough, R. A., Jr., Col., 13 St. Asaph's Rd., Bala-Cynwyd.
Lawrence, Salvatore A., Capt., 113 Harper, Dunmore.
Leone, Peter P., Major, 716 S. 7th St., Philadelphia.
Lyon, William C., Capt., 127 Valley Rd., Ardmore.
McFarland, Paul E., Lt. Col., Saxonburg.
Michael, Maurice A., Capt., 1501 Clearview St., Philadelphia.
Muzi, Americo J., Capt., 720 S. Main St., Old Forge.
Phillips, Vernon R., Capt., Dalmatia.
Pierce, Leslie S., Major, 217 Penna Ave., Greensburg.
Rabinovitz, Moses, Capt., 2912 Germantown Ave., Philadelphia.
Renn, Carl G., Major, 31 S. Main St., Hughesville.
Scanlan, Thomas J. D., Major, 22 Philadelphia Ave., Shillington.
Schaefer, Charles R., Lt. Col., 3208 Brownsville Rd., Pittsburgh.
Schaffer, Edward D., Capt., Northampton St., Bath.
Thomas, Harold W., Lt. Col., 1700 Orchard Ave., Arnold.
Trueman, Robert H., Major, 2139 S. 16th St., Philadelphia.
Vernocy, William C., Major, 1508 Coropolis.
Walker, Robert L. III, Capt., 323 West St., Wilkinsburg.

Texas

Adams, Clyde (female), Capt., Swift Route, Nacogdoches.
Alessandra, Samuel A., Capt., 4145 Normandy, Dallas.
Collins, William A. Jr., Capt., 2919 Grant Ave., El Paso.
Curtis, Wickliffe R., Lt. Col., 1501 Rim Rd., El Paso.
Dyson, Albert H. Jr. (colored), Major, 2816 State St., Dallas.
Eidman, Frederich G., Capt., 1449 Lawson, Houston.
Gilliland, James O., Major, 512 N. Sommerville, Pampa.
Hahn, William B., Capt., Columbus.
Haynes, Henry M. Jr., Capt., 210 S. 5th St., Gatesville.
King, Walter B., Jr., Capt., 2305 Morrow, Waco.
Lander, Roy S., Major, 1405 N. Glass St., Victoria.
Lett, James E., Capt., 921 Med. Arts Bldg., Dallas.
Martinak, Richard E., Capt., 3937 Junis Apt. 304, Dallas.
Orlando, Anthony M., Capt., 319 Buckingham St., San Antonio.
Searcy, Tom A., Capt., Box 466, Hearne.
Vieth, Richard P., Capt., 303 E. 10th St., Austin.
Walborn, Kenneth B., Capt., 3515 Lexington Ave., Dallas.

Vermont

Brady, Charles E., Major, 29 W. St., Barre.
Brosseau, Albert A., Capt., Highgate Falls.
Brown, Madison B., Lt. Col., 419 S. Prospect St., Burlington.
Chaffee, Clyde L., Capt., Newport.
Jardine, Ralph R., Capt., Lyndonville.
Thomas, John M., Jr., Capt., 24 Pleasant St., Woodstock.
Walsh, Maurice J., Capt., 114 Buell St., Burlington.
Willard, Paul C., Capt., Springfield.

Virginia

Axelson, Gordon, Major, Crozet.
Cocke, John A., Capt., Hollins College.
Culbertson, James W., Capt., 310 Park Place, Charlottesville.
Holsinger, Hubert Burner, Major, Farmville.
James, Charles F., Jr., Major, Appomattox.
Kinser, Prentice, Jr., Major, 115 Westmoreland Ct., Danville.
Nunnally, Claude A., Lt. Col., 405 Fauquier St., Fredericksburg.
Oast, John W. III, Capt., 826 Princess Anne Rd., Norfolk.
Rucker, Edwin M., Major, Med. Arts Bldg., Richmond.
Showalter, Josiah T., Major, Cambria.
Thompson, Girard V., Capt., Chatham.
Thompson, W. T. Jr., Major, 3410 Chamberlayne, Richmond.

Washington

Blair, John Ellwood, Capt., E. 901 26th Ave., Spokane.
Brown, J. Harold, Capt., 302 Pennsylvania, Cle Elum.
Corkery, John R., Capt., 303 Rookery Bldg., Spokane.
Dillon, Roll N., Major, 1618 20th N., Seattle.
Lowenstein, Bernard, Major, Tacoma Indian Sanat., Tacoma.
McElroy, Donald M., 1st Lt., 732 N. Stadium Way, Tacoma.
Nelson, Averly M., Capt., Route 2, Wenatchee.
Roe, James A., Capt., 504 Percival St., Olympia.
Sims, William F., Capt., 1409a W. Yakima, Yakima.
Tennant, Raymond E., Lt. Col., 1227 Med. Dental Bldg., Seattle.

Wisconsin

Anderson, Lawrence L., Major, Wisconsin Gen. Hosp., Madison.
Doolittle, John W., 1st Lt., 130 Breese Terrace, Madison.
Mann, Robert W., Capt., 2863 N. Lake Dr., Milwaukee.
Ottenstein, Harold H., Capt., 2760 N. 11th St., Milwaukee.

CHANGES

Archer, George Ferguson, Capt., 21 Peachtree Memorial Dr., Atlanta, Ga. Reported week 11-2-45.
Ascher, David, Major, 1657 Commonwealth Ave., Boston, Mass. Reported week ending 11-30-45.
Dreier, Joseph Francis, Major, P. O. Box 30, Dushore, Ga. Reported week ending 10-26-45.
Fisher, Edward Johnston, Capt., 807 Spruce St., Philadelphia, Pa. Reported week ending 11-2-45.
Frazier, John Wesley, Lt. Col., Salisbury, N. C. Reported week 10-12-45.
McKibbin, John Philip, Capt., 430 7th St. S.W., Rochester, Minn. Reported week 11-30-45.
Newman, William Harris Jr., Major, Clark's Green, Pa. Reported week 10-19-45.
Phillips, Water Ails, Lt. Col., Arlington, Tenn. Reported week ending 9-21-45.
Wickard, Charles Phillip, Capt., 2809 Gaines St., Little Rock, Ark. Reported week 10-19-45.
Zink, Linus Anthony, Major, Pecos, Texas. Reported week ending 9-21-45.

Foregoing listed officers have been recommended for return to active duty.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Jan. 14, 1945.

Dangers of Biologic Warfare Stressed in Report

George W. Merck, president of the Merck Chemical Company and special consultant to the Secretary of War, states in a special report presented to Secretary of War Patterson that biologic warfare, the spread of infection and disease, may become a greater threat to the peace of the world than the atomic bomb. This was the opinion of the group of scientists who compiled the report after more than four years of work on the subject, carried on in complete secrecy. It was also revealed that American scientists had feared an outbreak of germ warfare at the time of the landing in Normandy but were ready for it. The Navy announced that it had developed protective rubberized germ proof suits.

Capital to Exterminate Rats as Safeguard Against Typhus

Typhus has stricken a 16 year old girl and typhus infested rats have been caught in Washington, with the result that the District of Columbia has launched a campaign to clear out its notorious rat nuisance. Dr. John Essex, Public Health Service expert of Atlanta, Ga., has been brought in and latest scientific methods, including experiments with DDT and the new rat poison 1080, will be used. The District of Columbia public health engineer declared that swift action is required "if we're to ward off a typhus outbreak. It's raging down south and we can't allow it to spread here."

Subcommittee to Redraft Unification Bill

A new draft of the administration's Army-Navy unification bill, which involves medical branches of the armed forces, is to be worked out by a three man subcommittee of the Senate Military Affairs Committee. An effort will be made to speed up action when Congress resumes, January 14. Senate Military Chairman Elbert D. Thomas, Democrat of Utah, will head the subcommittee. The completed bill is expected to follow President Truman's recommendation for a single department under one cabinet head, with coordinated Army, Navy and Air arms, each under an assistant secretary.

Army Tablets Go Back to Manufacturers

The Surplus Property Administration reports that surplus amphetamine sulfate tablets, declared by the U. S. Food and Drug Administration to be extremely dangerous if distributed as at present packaged and if not used under medical supervision, will be sold back to the original manufacturer. The tablets from military medical stocks were declared surplus and will be sold to Smith, Kline and French Laboratories of Philadelphia, the manufacturers, at not less than the original cost to the government for repackaging and resale.

Veterans Administration Hires Specialist on Medical Problems of Women

For the first time in its history, the Veterans Administration has hired a special consultant on medical problems of women. Gen. Omar N. Bradley announced the appointment of the new post of Lieut. Col. Margaret D. Craighill, specialist on gynecology and surgery, who has served as consultant for women's health and welfare to the Surgeon General of the Army. She entered the Medical Corps in 1943 as a major.

Shortage of Housing Feared Menace to National Health

Washington officialdom, fearful that the current national shortage of housing might menace health, is getting help from the armed forces. The Navy has moved to provide some relief by declaring surplus $56,000,000 worth of building materials and 5,000 quonset huts located at four depots in the United States. The barracks could house an estimated 70,000 persons.

Council on Medical Service and Public Relations

PREPAID MEDICAL CARE NEWS

Yonkers Experiment

A recent experiment of United Medical Service, Inc., and Associated Hospital Service of New York should show rather definitely how interested people are in protecting themselves against the costs of medical care. On November 26 these two organizations started on a two weeks campaign to interest the citizens of Yonkers in the prepayment plan idea.

Six enrolment offices were located in business organizations and libraries throughout the city. Posters in these offices, in railway stations and at other prominent locations set forth the objectives of the campaign "to enable every person under 65 years of age who lives or works in Yonkers to enroll in the prepaid plans." During the period of the campaign, persons who were self employed, unemployed or otherwise unable to enroll through a group were given the privilege of enrolling without having to file a medical questionnaire.

Information concerning the campaign was also made available to the public through a series of paid announcements in the local press and through the voluntary cooperation of the city's medical societies, hospitals, welfare organizations and business and professional groups. For instance, Mayor Curtis E. Frank, on the opening day, issued a proclamation sponsoring the campaign. Girl and Boy Scouts helped to distribute literature and set up window displays. The Yonkers Medical Society passed a resolution endorsing the campaign. Official endorsements were also voted by such organizations as the common council of the city of Yonkers, the Social Planning Council, the Yonkers Teachers Association and the Yonkers Department of Public Health.

These endorsements, together with day by day progress reports, were fully reported in the press. Commentators broadcast the details of the campaign over the radio. People attending their places of worship heard announcements from the pulpit. The board of education cooperated by granting the committee permission to distribute Blue Cross and United Medical Service literature to students of public and parochial schools. Each set of literature, accompanied by a form letter addressed to the parents, was placed in an envelop which the pupils were urged to take home. A letter from the superintendents to the principals suggested that the pupils be advised of the importance of the literature. In some schools additional letters were sent by the principal to the parents.

Thousands of people learned about the campaign at local movie houses, where the film "Every Two Seconds," with a campaign trailer attached, was shown. Every theater in town cooperated.

Thousands more heard speakers explain the hospitalization and medical care plans at meetings of the Business and Professional Women's Club, the Exchange Club and the Visiting Nursing Association and at special gatherings such as one arranged by the Yonkers *Herald Statesman* for the benefit of its employees.

The Yonkers Medical Care Committee, comprising prominent Yonkers residents and business men, was appointed by the common council of Yonkers to conduct the campaign with the cooperation of Associated Hospital Service of New York and United Medical Service, Inc., after a two year study of existing medical expense plans. All communications to the public and press were issued on specially prepared committee letterheads under the signature of the committee chairman.

MEDICAL EDUCATION AND LICENSURE

Forty-Second Annual Congress on Medical Education and Licensure, to be held in the Red Lacquer Room, Palmer House, Chicago, February 11 and 12, 1946

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS, AMERICAN MEDICAL ASSOCIATION

MONDAY MORNING, 9:30

RAY LYMAN WILBUR, M.D., *Presiding*

Address
RAY LYMAN WILBUR, M.D., Stanford University, Calif., Chairman of the Council on Medical Education and Hospitals

IMPACTS OF THE WAR ON MEDICINE

Medical Progress During the War
PERRIN H. LONG, M.D., Baltimore, Professor and Director of Department of Preventive Medicine, Johns Hopkins University School of Medicine

Medical Education in Europe
WILBURT C. DAVISON, M.D., Durham, N. C., Dean, Duke University School of Medicine

Affiliation of Veterans' Hospitals with Medical Schools
PAUL B. MAGNUSON, Washington, D. C., Director of Research and Education, Veterans Administration

Discussion led by C. SIDNEY BURWELL, M.D., Boston, and William S. Middleton, M.D., Madison, Wis.

Address
GEORGE F. LULL, M.D., Chicago, Associate General Manager, American Medical Association; Major General, U. S. Army.

MONDAY AFTERNOON—2:00

RAY LYMAN WILBUR, M.D., *Presiding*

GENERAL AND SPECIALTY PRACTICE

Problems in Specialty Practice
PAUL TITUS, M.D., Pittsburgh, President, Advisory Board for Medical Specialties

The Practice of General Medicine
WILLIAM A. O'BRIEN, M.D., Minneapolis, Director of Postgraduate Education, University of Minnesota Medical School

Discussion led by ALPHONSE M. SCHWITALLA, S. J., St. Louis.

MEDICAL EDUCATION AND RESEARCH

Federal Aid for Medical Research
KENNETH B. TURNER, M.D., New York, Member, Medical Advisory Committee on the Report of Dr. Vannever Bush to the President

Research in Undergraduate Medical Education
DUDLEY W. BROOM, Ph.D., Philadelphia, Director, Eldridge Reeves Johnson Foundation for Medical Physics, University of Pennsylvania School of Medicine

Protection of Animal Experimentation
A. J. CARLSON, M.D., Chicago, Temporary Chairman, Organizing Board of Directors, National Commission for the Protection of Medical Science

Discussion led by EWEN MACEWEN, M.D., Iowa City and JOSEPH C. HINSEY, Ph.D., New York

THE FEDERATION OF STATE MEDICAL BOARDS

MONDAY—6:30

FEDERATION DINNER

The People's Health—A National Asset
HON. WATSON MILLER, Washington, D. C., Administrator, Federal Security Agency.
Room Fourteen

TUESDAY MORNING—9:30

ADAM P. LEIGHTON, M.D., *Presiding*

Presidential Address
ADAM P. LEIGHTON, M.D., Portland, Maine, President, Federation of State Medical Boards

Why Require Graduates of Approved Medical Schools to Pass a Basic Science Board Examination?
H. M. PLATTER, M.D., Columbus, Ohio, Secretary, Ohio State Medical Board

Part III of the National Board Examination—Its Character and Purpose
J. STEWART RODMAN, M.D., Philadelphia, Medical Secretary, National Board of Medical Examiners

Recent Licensure Developments in Massachusetts
H. Q. GALLUPE, M.D., Boston, Secretary, State Board of Registration in Medicine

Licensure by Reciprocity or Interstate Endorsement
ROY B. HARRISON, M.D., New Orleans, Secretary, Louisiana State Board of Medical Examiners

Recent Legislation Affecting Medical Licensure
Mr. J. W. HOLLOWAY, Chicago, Director, Bureau of Legal Medicine and Legislation, American Medical Association

TUESDAY—12:30

FEDERATION LUNCHEON
Room Nine

TUESDAY AFTERNOON—2:00

ADAM P. LEIGHTON, M.D., *Presiding*

Business Session—Reports of Officers—Reports of Committees—New Business.

CENTRAL COUNCIL FOR NURSING EDUCATION

MONDAY, 12:15

LUNCHEON FOR LAY BOARDS OF HOSPITALS AND PUBLIC HEALTH NURSING ORGANIZATIONS

Community Planning for Health
MR. SAMUEL A. GOLDSMITH, Chicago, Chairman of Health Division of Council of Social Agencies of Chicago
Grand Ballroom

Official Notes

DR. LULL APPOINTED ASSOCIATE GENERAL MANAGER

Dr. George F. Lull, formerly deputy Surgeon General, United States Army Medical Corps, has been appointed Associate General Manager of the American Medical Association and began work in his new position on January 1.

Coming Medical Meetings

Annual Congress on Medical Education and Licensure, Chicago, Feb. 11-12. Dr. Victor Johnson, 535 North Dearborn St., Chicago, Secretary.

Conference of State Secretaries and Editors, Chicago, Feb. 8-9. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

American Association of Pathologists and Bacteriologists, Chicago, March 8-9. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Orthopsychiatric Association, New York, Feb. 14-16. Dr. Nina Ridenour, 1790 Broadway, Room 916, New York 19, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, March 5-8. Dr. Warren W. Furey, 30 North Michigan Ave., Chicago 2, Secretary.

Southeastern Surgical Congress, Memphis, Tenn., March 11-13. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Georgia, Secretary.

Committee on Scientific Exhibit

MOTION PICTURES AND SLIDE FILMS ON HEALTH

Your Fight Against Infantile Paralysis. 16 mm., sound, motion picture. Running time 15 minutes.

This new motion picture shows the various methods being used in the treatment of the disease and some of the research going on for its prevention. It ends with a plea to continue these efforts. Further information may be obtained from the National Foundation for Infantile Paralysis, Inc., 120 Broadway, New York 5.

Weathering the Storms. Slide film. 35 mm., sound, 17 minutes.

This is a picture for laymen, explaining psychoneurosis, its cause and its prevention. The picture is intended for civilians, emphasizing the fact that psychoneurosis is not a disease peculiar to military personnel. It is suitable for use by medical officers of the Army and Navy.

The film may be obtained on a free loan basis from agents of the Zurich Insurance Companies. Further information may be obtained from the Industrial Welfare Department, Zurich Insurance Companies, 135 South LaSalle Street, Chicago 3.

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Medical Legislation

STATE LEGISLATION

Massachusetts

Bills Introduced.—S. 44 proposes to authorize the department of public health to investigate and study the causes of poliomyelitis, commonly called infantile paralysis, and the eradiation of such disease.

S. 45 proposes to authorize all duly registered physicians, on application, to practice in, and have his patients admitted to, any public or semipublic hospital, any hospital supported in whole or in part by contributions from the commonwealth; any city or town, or the public, or any hospital which solicits contributions for its support from the public.

S. 46, to amend the medical practice act, proposes the creation of a board of registration of chiropractors for the regulation, examination and licensing of such practitioners and defines chiropractic as "the science of locating, and removing, by hand only, interference with the transmission or expression of nerve force in the human body, where such interference is indicated or misalinement or subluxations of the vertebral column appear. It excludes operative surgery, prescription or use of drugs or medicine, or the practice of obstetrics, except that the x-ray may be used solely for the purposes of examination."

H. 57, to amend the law relating to patients in institutions under the supervision of the department of mental health, proposes that no restraint in the form of buckles, waist straps, anklets, etc., shall be imposed on any such patient unless applied in the presence of the superintendent, or of the physician or of an assistant physician of the institution, or on his written order, which shall be preserved in the files of the institution for a period of two years.

H. 74, to amend the law relating to bacteriologic laboratories, proposes to authorize the department of public health to grant certificates of approval for laboratory tests on milk, foods, eating utensils, water and sewage in accordance with such rules and regulations as the department may establish.

H. 76, to amend the hospital licensing law, proposes to include thereunder the operation of convalescent homes and nursing homes, defined as "any institution, whether conducted for charity or profit, which is advertised, announced or maintained for the express or implied purpose of caring for three or more persons, not acutely ill, admitted thereto for the purpose of chronic or convalescent care."

H. 78, to amend the law relating to the department of public health, proposes to authorize such department to conduct clinics for the diagnosis and treatment of patients ill with chronic disease.

H. 115 proposes the enactment of a voluntary system for the payment of hospital, surgical operation, sickness and bodily injury and maternity benefits to employees.

H. 117 proposes to punish any person who experiments or operates in any manner whatever on any living dog or cat for any purpose other than the healing or curing of said dog or cat.

H. 230, to amend the medical practice act, proposes to authorize the board of medical examiners to grant certificates of registration, without examination, to such persons as shall furnish with their applications satisfactory proof that they have the qualifications required in Massachusetts to entitle them to be examined and have been licensed or registered on a written examination in another state whose standards, in the opinion of the board, are equivalent to those in Massachusetts. The bill further proposes that no person shall be registered without an examination if he is a graduate of a medical school not approved by the approving authority.

H. 261, to amend the hospital lien law, proposes the creation of a lien in favor of any hospital receiving state aid or any hospital owned, operated or aided by a city or town on the proceeds of any insurance policy issued to the person alleged by the patient to be responsible for the accident.

H. 268, to amend the workmen's compensation law, proposes to authorize an injured employee to be treated by a physician of his own selection, the reasonable cost of such physician's services, including reasonable fees for testimony given at any hearing conducted by the industrial accident board, to be paid by the insurer.

H. 269, to amend the workmen's compensation law, proposes that fees of attorneys and physicians and charges of hospitals shall be paid by the insurer or self insurer.

H. 298, to amend the law regulating the practice of pharmacy, proposes to authorize the board and the commissioner of education to establish standards to be met by colleges of pharmacy and to grant certificates of approval to colleges meeting such standards as well as to revoke any certificate of approval previously issued to any college which lowers its standards below that established by the board and the commissioner.

H. 299, to amend the medical practice act, proposes that all persons who matriculated at the Middlesex University School of Medicine during the month of January 1941 and were duly graduated therefrom on July 24, 1944 and subsequently served as interns shall be eligible for examination and registration in medicine in the state.

Bureau of Information

SUMMARY SHEETS FROM TEXAS

Completed county summary sheets have been received from counties in Texas through Dr. Holman Taylor, secretary, State Medical Association of Texas.

The accompanying table gives data from selected counties in these states. The column giving the number of persons per telephone is used as one index of the economic status of the area.

Texas

County [1]	Principal Cities [2]	Population	Physicians Under 65	Persons per Physician	Persons per Telephone [3]
Bosque		12,030	6	2,005	14
Cooke		23,865	7	3,409	15
	Gainesville	9,651			
Crosby		11,606	2	5,803	57
Fayette		23,711	10	2,371	16
	LaGrange	2,551			
Gray		22,090	10	2,210	11
	Pampa	12,895			
Hidalgo		94,270	39	2,417	38
	McAllen	11,877			
	Edinburg	8,718			
	Mercedes	7,024			
Llano		4,328	2	2,164	7
	Llano	2,638			
Mitchell		11,532	3	3,844	16
	Colorado City	5,213			
Presidio		8,383	3	2,794	21
	Marfa	3,805			
Wichita		72,981	52	1,403	10
	Wichita Falls	45,112			
	Electra	5,588			
	Burkburnett	2,814			

1. Bureau of Census, estimated population 1943.
2. Bureau of Census, population 1940.
3. Based on 1940 figures, American Telephone and Telegraph Company.

Many physicians over 65 years of age are carrying on large practices and are doing much to maintain the health of communities. They are not included in computing physician population ratios, however, as the future needs of the communities will be largely dependent on younger physicians.

A current knowledge of needs of communities for doctors is essential if adequate help is to be given veteran medical officers in their problems of medical practice. These needs can be indicated on the summary sheets under "Remarks" by the state and county secretaries and are then available to inquiring medical officers. Frequent reports from state and county medical societies about needs of communities for doctors will help maintain current files and will increase the service of the Bureau.

With the information available on a completely filled out summary sheet, it is readily possible for an interested medical officer to make an initial selection of areas in which he might like to practice. Since vacancies are held open in many communities for doctors now in military service, further investigation by direct correspondence with state and county medical societies will always be necessary to insure an accurate report of the needs of individual communities.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Thomas Morgan Dies.—Thomas H. Morgan, Ph.D., professor emeritus of biology, California Institute of Technology, and in 1933 winner of the Nobel Prize for his research on heredity, died in Huntington Memorial Hospital, Pasadena, December 4, aged 79. Dr. Morgan won the Nobel Prize in medicine for his "discoveries relating to the heredity function of chromosomes."

The Reginald Knight Smith Lecture.—Dr. Max Pinner, New York, clinical professor of medicine, Columbia University College of Physicians and Surgeons, New York, will deliver the second Dr. Reginald Knight Smith Lecture on January 24 at the Mount Zion Hospital, San Francisco, sponsor of the lecture. The subject will be "Modern Trends in the Treatment of Pulmonary Tuberculosis."

DELAWARE

Personal.—Dr. Howard L. Reed has been appointed assistant medical director of the Hercules Powder Company, Dr. Lemuel C. McGee, Wilmington, Hercules medical director, announced on January 3. Dr. Reed has been medical director of the Hercules operated Sunflower Ordnance Works in Kansas for the past two years. Prior to that he was medical director of the Hercules operated Badger Ordnance Works in Wisconsin. Dr. Reed graduated at Duke University School of Medicine, Durham, N. C., in 1936.

ILLINOIS

County Health Department Operating.—The Cook County Department of Health is now functioning in accordance with action taken by the board of commissioners on Dec. 10, 1945. Since July 1, 1940 the public health unit had been operating within the department of public welfare. Under the new setup Dr. Edward A. Piszczek, Chicago, who had been director of the old unit, will continue in charge with the title of chief medical officer. The county organization now has the authority to develop its own regulations and to coordinate more closely the health activities in Chicago, Evanston, Winnetka and Kenilworth, which have their own units.

Chicago

Funds Released for Medical Center.—Governor Dwight H. Green recently released $641,000 to acquire property for the West Side Medical Center. The sum is part of $1,100,000 designated for the center and included in the state's postwar public works program.

Chemical Factors in Inflammation.—The School of Medicine of the University of Chicago sponsored a public lecture December 7 on "The Role of Chemical Factors in Inflammation." The lecturer was Dr. Valy Menkin, assistant professor of pathology, Duke University School of Medicine, Durham, N. C.

Health Service to Survey Chicago.—Dr. Frank V. Meriwether, director, district of the U. S. Public Health Service, announced December 19 that his office will begin a survey of Chicago health facilities on February 1. The study was requested by the Chicago Medical Society, the Institute of Medicine of Chicago and the health division of the Chicago Council of Social Agencies. Brig. Gen. James Thompson, U. S. Public Health Service, now stationed in Japan, will direct the project. It is estimated that from eight months to a year will be required to complete the work.

Personal.—Dr. Max Thorek recently received the civilian decoration of the Peruvian government, the "Order of the Sun." The presentation was made by Dr. Humberto Fernandez-Davilla, minister counselor of the embassy in Washington, in recognition of Dr. Thorek's contributions to surgical science.——Dr. Edward D. Allen has been appointed acting head of the department of obstetrics and gynecology at Presbyterian Hospital to succeed Dr. N. Sproat Heaney, who resigned and moved to Beverly Hills, Calif., where he has entered practice. Dr. Heaney became acting chairman of the department in 1921 and chairman in 1924.——Jon M. Jonkel has resigned as director of the department of public relations, American Hospital Association, effective January 5, to establish an organization specializing in the public relations problems confronting hospitals.

KENTUCKY

Woman Physician Honored.—Friends of Dr. Alice N. Pickett, Louisville, professor and executive of the division of obstetrics, have established the Alice Pickett Fund for Obstetrical Gynecology. The fund was set up to honor Dr. Pickett, who has been at the University of Louisville School of Medicine for many years, and to assist the school of medicine and hospital to obtain a full time head of the department of obstetrics and gynecology, to buy equipment and to provide funds for research.

Campaign Opened to Develop Rural Physician Program.—The plan of the Kentucky State Medical Association to set up a revolving fund of $50,000 to $75,000, to be designated a scholarship fund for medical students who agree to practice in country districts after graduation, was launched December 12 at a dinner. Dr. Carl C. Howard, Glasgow, author of the program, was unable to attend the meeting because of illness. Dr. Gaithel L. Simpson, Greenville, presided instead. The tentative plans for the scholarships call for the revolving fund. Ten students would be assisted annually on an estimated tuition of $550 and be required to practice in rural areas and repay the principal within ten years at nominal interest. The action to sponsor this program was planned at the recent annual meeting of the Kentucky State Medical Association (THE JOURNAL, Oct. 27, 1945, p. 642).

MASSACHUSETTS

Reginald Smithwick Named Professor at Boston University.—Dr. Reginald H. Smithwick, instructor in surgery at Harvard Medical School, Boston, has been appointed professor and chairman of the department of surgery at Boston University School of Medicine and surgeon in chief of the Massachusetts Memorial Hospitals. In his new position Dr. Smithwick, who graduated at Harvard in 1925, will continue and extend his investigations on the surgical treatment of hypertension and peripheral vascular disease.

Tufts Medical Alumni Lecture.—The annual Tufts Medical Alumni Lecture will be given on February 20 at the Tufts College Medical School, Boston, by Dr. Winthrop Adams, manager of the Veterans Administration Facility at Bedford. His subject will deal with the possibilities of a medical career with the Veterans Administration. Dr. Adams was recently appointed deputy surgeon general of one of the thirteen U. S. districts formed under the reorganization plan of the Veterans Administration. The district which Dr. Adams will head will have its center in Boston and will comprise seven hospitals, five regional offices and three hospitals yet unbuilt.

Fellowship for Advanced Research in Genetics or Mental Health.—Radcliffe College, Cambridge, invites application for the Helen Putnam Fellowship for Advanced Research in the general field of genetics or of mental health. The fellowship, carrying a stipend of $2,000 and covering a period of eleven months from October 1, is open to mature women scholars who have gained their doctorate or who possess similar qualifications and who have research in progress. Applications for the award must be submitted to Radcliffe College not later than April 1. All normal laboratory facilities will be provided to the winner of the Putnam Fellowship, whose appointment will be announced about May 1 by the committee on award.

Brigadier General Simmons New Dean of School of Public Health.—Brig. Gen. James S. Simmons, U. S. Army, chief, preventive medicine service, Office of the Surgeon General, has been appointed dean of the Harvard University School of Public Health, it was announced January 10. He is expected to take over the position July 1. The Rockefeller Foundation has granted $1,000,000 for expenses of the school of public health from July 1, 1946 to June 30, 1956, and Harvard University has set aside an additional sum of $750,000 as an endowment for the school to supplement the present endowment fund. In a reorganization intended to make this one of the foremost research and teaching institutions in the world, the school of public health will have coequal status in the university with the medical school and other professional divisions. In addition to its present marble building at 55 Shattuck Street, Boston, the school of public health will occupy Collis P. Huntington Memorial Hospital, which was used before the war for cancer and tumor research and during the war by the government for secret

experiments. Acquisition of the hospital, which is to be remodeled, will give the school an additional 40,000 square feet of floor space. Founded in 1922 with the aid of a Rockefeller Foundation grant now known as the Henry P. Walcott Endowment Fund, the Harvard school of public health pioneered in special departments such as industrial hygiene and child health. Dr. Edward G. Huber is acting dean of the school of public health. Brigadier General Simmons, born in Newton, N. C., June 7, 1890, graduated at the University of Pennsylvania School of Medicine in 1915 and at the Army Medical School in 1917. He received a Ph.D. degree from George Washington University Medical School in 1934 and the degree of doctor of public health from the Harvard school of public health in 1939.

MICHIGAN

Personal.—Dr. Edward E. Dart, Chicago, recently physician in charge at Chrysler's Dodge plant in Chicago, has become chief of Chrysler's Industrial Hygiene Laboratory, Detroit, succeeding Dr. Lewis L. Kline.——Dr. Hugh L. Dill, Detroit, recently declined to be a candidate to succeed himself in the office of mayor of Grosse Pointe City. Dr. Dill had been mayor since February 1944, when the previous mayor died. He has served the city for eleven years as councilman and mayor.

Campaign Against Drug Store Prescribing.—The Michigan State Board of Health, in cooperation with the county prosecutors, the police and sheriffs' officers, is conducting a campaign to stamp out illegal medical practice by pharmacists, newspapers reported December 22. In a Detroit survey it was revealed that, in a third of 756 drug stores canvassed, pharmacists were willing to diagnose and prescribe remedies for venereal disease. The outstate survey of 242 stores showed that 40 per cent would perform similar service.

Secretaries' Conference.—The annual County Secretaries Conference of the Michigan State Medical Society will be held at the Wardell-Sheraton Hotel, Detroit, January 20. Among the speakers will be:

Dr. Robert L. Novy, Detroit, Progress Report on Michigan Medical Service.
Col. James C. Harding, M. C., Washington, Veterans Administration Plan for Michigan.
Dr. Louis F. Foster, Bay City, Uniform Fee Schedule for Governmental Agencies.
Dr. Earl I. Carr, Lansing, Michigan Foundation for Medical and Health Education.
Dr. George F. Lull, Chicago, Postgraduate Medical Education.
Dr. Edward J. McCormick, Toledo, Ohio, Medical Public Relations.

MISSOURI

The Terry Lecture.—Dr. Loyal Davis, professor of surgery, Northwestern University Medical School, Chicago, gave the annual Robert J. Terry Lecture before the St. Louis Medical Society, December 18. His subject was "Experimental and Clinical Investigations on Surgery of Peripheral Nerve Injuries."

Society Honors Laymen and Physicians.—Three laymen were honored recently by the Jackson County Medical Society for their interest in public health. A certificate of award went to each of the three men: to Mr. Homer H. Berger for his interest in the medical society and the development of the Blue Cross Hospital Service, of which he is the legal counsel, to Mr. Arthur B. Church, president of KMBC radio station for maintaining on the radio for over four years the program "health and happiness," presented each Sunday evening in cooperation with the society, and to Mr. Forrest F. Dodd, president of the Blue Cross Hospital Service, for the successful progress of that service. The Lay Honor Award originated in 1944, when the first award was presented to Mrs. Ruth A. Hirsch in tribute to her work in the development of the Jackson County Health Forum (THE JOURNAL, May 6, 1944, p. 73). The society also presented merit awards with the gold key of the society to Drs. Ambrose E. Eubank for his devoted interest and service to the society, to James R. McVay for service to the profession through his interest in medical education and legislation, and to Edward H. Skinner, all of Kansas City, for his direction and development of the society's library. Dr. Eubank and Dr. Skinner were not present to receive the awards, nor were Mr. Church and Mr. Dodds.

NEW HAMPSHIRE

University Physician Appointed.—On January 3 Major Walter E. Batchelder, who is on terminal leave from the army, began his activities as newly appointed physician and director of the health service of the University of New Hampshire, effective January 3. Dr. Batchelder graduated at the Boston University School of Medicine in 1939.

NEW YORK

Paul Brooks Retires.—Dr. Paul B. Brooks, Albany, deputy state commissioner of health, retired January 1 after thirty years of service on the staff of the state department of health. Dr. Brooks joined the state department of health in 1915, subsequently serving as district sanitary supervisor, acting director of the division of communicable disease and assistant director of laboratories and research. In 1923 he was named deputy commissioner. He has been secretary of the Chenango County Medical Society and the International Association of Milk Sanitarians, serving also as president of the latter.

Hospital and Medical School Cooperate in New Program.—The Genesee Hospital and the University of Rochester School of Medicine and Dentistry have agreed on a close working relationship, each institution to maintain its complete operating and administrative independence and the facilities of the two hospitals to be available to the teaching staff of each. A statement points out that though this is not a formal agreement the leadership in both institutions assumes the responsibility for the success of the project, which is patterned on the "very successful relationship that exists between the Massachusetts General Hospital and Harvard Medical School." To achieve a successful arrangement, the following recommendations were made:

That all directors of departments of the Genesee Hospital shall be appointed in the customary manner, that is, by the hospital's board of governors, with the advice of the advisory board of the school of medicine and dentistry.

The nonteaching members of the staff of all grades and in all departments of the Genesee Hospital shall be appointed in the customary manner by the board of governors on the recommendation of the director of each department and of the medical board.

That all the teaching members of the staff of all grades and in all departments of the Genesee Hospital shall be appointed in the customary manner by the board of governors on the recommendation of the director of each department and of the medical board, with the advice of the advisory board of the school of medicine and dentistry.

New York City

Meeting on Diabetes.—The New York Diabetes Association, Inc., will hold an open meeting at the New York Academy of Medicine, January 26. Dr. Charles H. Best, Toronto, Canada, will discuss "A Quarter of a Century in Medical Research" and "Factors Affecting Fat Transport in the Animal Body." Dr. Reginald E. Haist, Toronto, will talk on "Carbohydrate Metabolism in Traumatic Shock."

Hospital Provides Office for Returned Staff Members.—Sydenham Hospital is arranging to make available a fully equipped office for the use of its staff doctors while they are getting reestablished in practice on their return from military service. The hospital will provide the space, and the doctors who did not go to war will underwrite the equipment of the office and the provision of a nurse-secretary while the returning physicians find permanent quarters, and as the returning doctors become able to contribute to the secretarial cost they will be expected to do so. The hospital's dental clinic will be made available in a similar way to staff dentists back from war duties. The clinic is already fully equipped, according to the New York *Times*.

Walter Reed Chosen for Hall of Fame.—Dr. Walter Reed, noted for his work on yellow fever, was the only physician elected to the Hall of Fame for Great Americans on the campus of New York University recently. The physician was one of four famous men who were chosen by a vote of 93 distinguished men and women who comprised the "College of Electors" from a field of 130 candidates nominated by the public. The election brings to 77 the number of historical figures chosen for the honor of a place in the Hall of Fame since it was founded in 1900 by the late Chancellor Henry Mitchell MacCracken. Dr. Reed is the first member of the medical profession to be chosen because of his contribution to medical knowledge and the first alumnus of the New University College of Medicine to receive this distinction. He died in 1902. The recent election was the tenth quinquennial election. In addition to Dr. Reed, who was elected, seven other physicians were named as nominees:

William Beaumont (1785-1853), discoverer of the physiology of digestion.
William T. H. Bellamy (1844-1911), physician, surgeon.
Elizabeth Blackwell (1821-1910), first American woman medical graduate.
Reginald Heber Fitz (1843-1913), discoverer of appendicitis.
William Crawford Gorgas (1854-1920), noted for work on yellow fever.
Ephraim McDowell (1771-1830), distinguished surgeon.
Benjamin Rush (1745-1813), physician and signer of the Declaration of Independence.

PENNSYLVANIA

Pittsburgh

Nu Sigma Nu Lecture.—Dr. John R. Paul, professor of preventive medicine, Yale University School of Medicine, New Haven, will give the first lecture in a new lectureship recently established by the Nu Sigma Nu Medical Fraternity, University of Pittsburgh School of Medicine. Dr. Paul will speak January 23 on "Infectious Hepatitis."

VIRGINIA

New Professor of Pharmacology.—Dr. Chalmers L. Gemmill, associate professor of physiology, Johns Hopkins University School of Medicine, Baltimore, and for the past four years on leave of absence as commander in the Medical Corps, U.S.N.R., in charge of aviation medical research at the Naval Air Station, Pensacola, Fla., has been appointed professor of pharmacology at the University of Virginia Department of Medicine, Charlottesville, succeeding the late Dr. James A. Waddell.

Changes in Health Officers.—Dr. John G. McNiel, Bristol, has been named health officer of the Southside Health District, effective October 26. Dr. Willard W. Griggs, Newport News, has been named health officer of the Page-Warren-Shenandoah Health District, effective November 1. Dr. John C. Sleet has resigned as health commissioner of Norfolk. Dr. Albert L. Chapman, Wrightstown, N. J., U. S. Public Health Service, has been assigned to succeed Dr. Henry B. Hoff as assistant health commissioner. Dr. Hoff plans to enter private practice in Pennsylvania. In his new position Dr. Chapman will be eligible to serve as acting health commissioner on Dr. Sleet's resignation. Dr. James M. Suter, Bristol, has returned to service with the Virginia Department of Health as health officer of the Smyth-Washington-Bristol Health District, effective December 6. Dr. Frederick C. Heath, Laureldale, Pa., has been appointed health officer of the Giles-Montgomery-Radford Health District, with headquarters at Christiansburg, effective January 1.

WEST VIRGINIA

Uniform Procedures for Aid in Tuberculosis.—A change in the method of determining eligibility for state aid to tuberculous patients requiring sanatorium care and pneumothorax refills has been announced by Dr. Robert L. Smith, Charleston, acting director of the bureau of tuberculosis control. The new procedure, which will permit a more equitable consideration of cases and which will systematize fiscal handling, is in line with the provisions of a cooperative arrangement recently made by Dr. John E. Offner, Weston, state health commissioner, with the department of public assistance, which provides for the latter to supply social and financial information concerning the families of patients. Details of the new program will be handled by Mr. Charles W. Rogers, formerly of New Martinsville, who will have headquarters in the bureau of tuberculosis control in Charleston. Mr. Rogers, who is a trained social worker, will serve in a liaison capacity between the bureau, local health departments, offices of the DPA and tuberculosis sanatoriums. Physicians who have tuberculous patients needing sanatorium care, the cost of which they are unable to meet themselves, will fill out and sign an application for admission to a state sanatorium. This application may be signed by a county health officer if a physician has not been in charge of the case. The application is to be presented to the local DPA by the patient or by a responsible representative. An investigator for the department will then complete a certified report concerning family income and expenses and will forward the report to the bureau of tuberculosis control, which will determine eligibility for state aid. No delay will be occasioned when the families of patients are already known to DPA workers. Persons eligible for state aid will be certified to a sanatorium, and the patient will be advised when to report for hospitalization. A person found ineligible for a state subsidized bed will have his application returned, and he may then submit it directly to the sanatorium by agreeing to pay the required fee of $1 a day per patient. When a state aid patient is discharged from the sanatorium with the approval of the medical staff, recommended pneumothorax refills may be paid for out of state funds. The patient himself selects a physician who is qualified under the standards adopted by the public health council, and a pneumothorax referral is forwarded to the bureau of tuberculosis control, which in turn transmits an authorization for treatment to the doctor. Pneumothorax refills are not paid for when a patient leaves a sanatorium without official permission. Patients who are already paying for sanatorium treatment and care may apply for state aid through a county health officer if he later becomes unable to continue such payments, and this application is processed under the same method provided for consideration of original applications for state aid.

GENERAL

Society News.—The Central States Dermatological Society will meet at the Harper Hospital in Detroit, April 27. Dr. Clarence E. Reyner, Henry Ford Hospital, Detroit, is secretary.——The next annual meeting of the American Urological Association will be held at the Netherland Plaza Hotel, Cincinnati, July 22-26.——The Medical Library Association will hold its annual meeting at Yale University, New Haven, Conn., March 25-27.

Clinical Fellowships in Medicine Nearly Exhausted.—The clinical fellowships in medicine offered by the American College of Physicians to provide further training for returning veteran medical officers are nearly exhausted. Because of the large number of applications on hand and pending, no further applications will be accepted by the Office of the Educational Director, 4200 Pine Street, Philadelphia 4, after February 1.

Committee on Deaf-Blind.—Announcement was made recently of the formation of the Helen Keller Committee on the Deaf-Blind as a department of the American Foundation for the Blind, 15 West 16th Street, New York 11. The objectives of the new committee are to:

Improve educational methods for the deaf-blind on an individual basis to provide greater self resourcefulness, thus compensating for limited contacts with others.

Find a shorter and more rapid manual language to speed communication with family and friends.

Obtain greater vocational opportunities for the deaf-blind in workshops for the blind and in private industry.

Increase the social relationships of the deaf-blind by developing special activities for them and by devising ways to permit them to participate in usual recreations.

Special Society Elections.—Dr. Robert V. Seliger, Baltimore, was reelected president of the Medical Correctional Association at its annual meeting in New York, November 15-16. Other officers are Dr. Frank J. Curran, New York, and Dr. Michael J. Pescor, Springfield, Mo., vice presidents, and Robert M. Lindner, Ph.D., Baltimore, secretary-treasurer. The Medical Correctional Association is an affiliate of the American Prison Association.——At the annual meeting of the American Society of Tropical Medicine in Cincinnati, November 13-15, Brig. Gen. James S. Simmons, Washington, D. C., was inducted into the presidency, Dr. Edward I. Salisbury, New York, was chosen president-elect, Dr. Joseph S. D'Antoni, New Orleans, vice president, and Dr. Norman H. Topping, Bethesda, Md., secretary-treasurer.

Orthopedic Surgery Meeting.—The thirteenth annual meeting of the American Academy of Orthopaedic Surgeons will be held at the Palmer House, Chicago, January 19-23, under the presidency of Dr. Eugene B. Mumford, Indianapolis. Among the speakers will be:

Drs. Alfred W. Adson, Henry H. Young and Ralph K. Ghormley, all of Rochester, Minn., Combined Neurectomy and Bone Graft in Spastic Torticollis.

Dr. Joseph A. Freiberg, Cincinnati, Arthrodesis of the Hip, Brittain type.

Dr. Edward L. Compere, Chicago, Treatment of Congenital Dislocation of the Hip.

Capt. Samuel B. Fowler, M. C., Mobilization of the Metacarpophalangeal Joints—Arthroplasty and Capsulotomy.

Major James V. Luck, M. C., Psychologic Problems Observed in Military Orthopedic Surgery.

Dr. Jean Verbrugge, Antwerp, Belgium, Factors Influencing Bone Repair in Open Reductions of Fractures.

Dr. George O. Eaton, Baltimore, Overseas Treatment of Compound Fractures of the Long Bones.

Lieut. Col. Harry C. Blair, M. C., and Major Harry D. Morris, M. C., Conservation of Short Amputation Stumps by Utilization of Tendon Section.

Dr. Duncan C. McKeever, Houston, Texas, Cellophane in Reconstructive Orthopedic Surgery.

Grants for Research in Endocrinology.—The committee on research in endocrinology, National Research Council, wishes to announce that requests for grants-in-aid during the fiscal period from July 1, 1946 to June 30, 1947 will be received until Feb. 28, 1946. Application blanks may be obtained by addressing the secretary, Division of Medical Sciences, National Research Council, 2101 Constitution Avenue, Washington 25. In addition to a statement of the problem and research plan or program, the committee desires information regarding the proposed method of attack, the institutional support of the investigation and the uses to be made of the sum requested. No part of any grant may be used by the recipient institution for administrative expenses. The committee makes grants in

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aid of research in the general field of experimental and clinical endocrinology. However, applications for support of research in the problems of sex in the narrower sense cannot be given favorable consideration, and investigators seeking support in this field should direct their proposals to the committee for research in problems of sex of the National Research Council. The committee on research in endocrinology, however, will continue to give consideration to the support of studies of the effect of sex hormones on nonsexual functions, e. g. on general metabolism and on the metabolism of steroid hormones.

College of Surgeons Resumes Sectional Meetings.—The American College of Surgeons announces the resumption in 1946 of its sectional meetings, which during the war were replaced by one day war sessions. Ten two day meetings are planned, to begin in Minneapolis, with headquarters at the Radisson Hotel, on January 28-29. Other meetings will be:

Hotel Jefferson, St. Louis, January 31-February 1.
Tutwiler Hotel, Birmingham, February 8-9.
William Penn Hotel, Pittsburgh, March 11-12.
Statler Hotel, Boston, March 18-19.
Mount Royal Hotel, Montreal, March 22-23.
Statler Hotel, Detroit, March 26-27.
Utah Hotel, Salt Lake City, April 8-9.
Multnomah Hotel, Portland, Ore., April 12-13.
Biltmore Hotel, Los Angeles, April 17-18.

The medical profession at large, medical students and hospital executives are invited to join with the fellows of the college in these meetings. Separate meetings are planned each morning and afternoon for hospital personnel, with joint luncheon sessions on both days and a dinner meeting on the first evening. The programs for the medical profession begin at 8:30 each morning with the showing of medical motion pictures followed by scientific sessions. Scientific sessions will also be held each afternoon. The dinner on the first evening will be followed by a forum on graduate training in surgery. Among the subjects scheduled for discussion at the meetings for the medical profession are the treatment of infection by chemotherapy and the antibiotics; injuries to the bile ducts; preoperative and postoperative supportive treatment; treatment of open wounds; treatment of osteomyelitis; management of advanced cancer; the care of the veteran, and the reconversion period in the practice of medicine. The hospital conferences will be devoted to discussion of high standards for postwar hospitals, approached from the standpoint of administration, professional services and care of different types of patients. Headquarters of the American College of Surgeons are in Chicago. Dr. Irvin Abell, Louisville, is chairman of the board of regents; Dr. William E. Gallie, Toronto, is president, and Dr. Malcolm T. MacEachern and Dr. Bowman C. Crowell, both of Chicago, are associate directors.

HAWAII

Varied Nationalities Represented in Society.—Mrs. Edith C. Bennett, executive secretary of the Hawaii Territorial Medical Association, on December 12 reported that within its membership of 251 the Honolulu County Medical Society has 67 doctors of Japanese, 41 of Chinese, 5 of Korean, 1 of Hawaiian and 137 of European descent. Doctors representing this diversity of origin not only are members but occupy important official positions. The chairman of the program committee, for instance, is Dr. Samuel L. Yee, Honolulu, of Chinese extraction. The man in charge of public relations is Dr. Homer M. Izumi Kula, of Japanese extraction. Joseph Lam, of Chinese extraction, is a member of the board of governors.

Plantation Physicians Hold Meeting.—New officers of the Territorial Association of Plantation Physicians, elected during a meeting in Honolulu November 9-11, are Dr. Paul H. Liljestrand, Aiea, Oahu, president, Dr. William D. Balfour, Wailuku, Maui, vice president, and Dr. Marvin A. Brennecke, Waimea, Kauai, secretary-treasurer. Among the speakers were:

Major Orlando S. Koepsel, M. C., Corpus Christi, Texas, Proper Handling of Incised Wounds, Lacerations and Cut Tendons.
Major Norris L. Brookens, M. C., Cincinnati, Some Unknown Factors in Producing Vitamin Deficiencies.
Dr. Brennecke, Plantation Hospital Practice Compared with the Kaiser Hospitals.
Dr. Alvin C. Dougan, Honolulu, New Developments in the Field of Mechanics and Electronics by Plantation Doctors.

Medical Society Donates Textbooks to Philippine University.—In a move to supply badly needed medical textbooks to the University of the Philippines College of Medicine, Manila, members of the Honolulu County Medical Society have donated nearly a thousand volumes from their personal libraries, according to John D. Williams, navy correspondent. The plea for medical books and periodicals was raised by Lieut. Comdr. George F. Hoppe of Squadron VR-11, Naval Air Transport Service, who has been voluntarily gathering books of every description for the Philippine educational system. In his one man campaign to arouse interest Lieutenant Commander Hoppe, a former Minnesota school superintendent, suggested the need of medical textbooks to Dr. Morton E. Berk, Honolulu. Members of the Honolulu County Medical Society were invited to donate any of their unused textbooks or periodicals. Lieutenant Commander Hoppe gathered the medical volumes and dispatched them to the Medical School of the University of the Philippines aboard NATS planes not fully loaded for flight.

PUERTO RICO

Proposed Malaria Control.—The Department of Health of Puerto Rico will carry out a malaria control program during the fiscal year 1945-1946 costing $435,000, according to Act 323 of 1945 passed by the Insular Legislature. The island has been divided into five districts for the purpose of this malaria control program. Home treatment of malaria cases will be performed by sixty public health aids in these districts. The appropriation for this project is $77,600. Control of malaria by means of larvicides and drainage will be continued at San Juan, Santurce, Rio Piedras, Arecibo, Fajardo, Ponce, Villalva, Juan Diaz, Santa Isabel, Salinas, Guaynabo, Arroyo and Patillas. Plants for the construction of drainage pipe and warehouses will be constructed at Ponce, Salinas, Santa Isabel, Juan Diaz, Villalva and Guayama. The utilization of DDT as a residual insecticide will be carried out on the rural area of Santa Isabel, with cooperation of the U. S. Public Health Office. One principal engineer and one entomologist will supervise the drainage projects at Santa Isabel and Ponce. The largest of these projects is the one to be established at Ponce, second largest city on the island, with an appropriation of $103,900.

Government Services

Grants-In-Aid Recommended by Cancer Council

Eight federal grants-in-aid totaling $42,040.94 to further the study of cancer have been recommended by the National Advisory Cancer Council. The two largest grants, $10,000 each, will go to Washington University School of Medicine, St. Louis, for a study of the effect of radioactive phosphorus on leukemia, polycythemia vera and various malignant diseases, and to Memorial Hospital for the Treatment of Cancer and Allied Diseases in New York City for metabolic studies in patients with gastric cancer. Other grants will include $4,700 to the University of Minnesota Medical School, Minneapolis, for a study directed at identifying "precursor groups" of patients in whom cancer of the stomach is developing; $5,000 to Yale University School of Medicine, New Haven, for a study of steroids and enzymes in cancer; $3,600 to the University of Southern California School of Medicine at Los Angeles for a study of chemical characterization of split protein products from the blood of cancer patients; $2,640.94 to Jeanes Hospital in Philadelphia for a study of variations of the Golgi apparatus in human neoplastic diseases; $1,100 to Meharry Medical College, Nashville, for a continuation of investigations and follow-up work at the George W. Hubbard Hospital, and $5,000 to Syracuse University College of Medicine for chemotherapeutic studies in cancer. The National Advisory Cancer Council was created by Congress to advise the Surgeon General of the Public Health Service on all phases of cancer. One of its duties is to review and make recommendations on applications from institutions and individuals for grants-in-aid for cancer research. Applications for grants were few in number during the war, but it is expected that they will increase rapidly as scientists are released from the armed forces and from research projects connected with the war effort. Members of the National Advisory Cancer Council are Dr. James B. Murphy, director of cancer research, Rockefeller Institute for Medical Research, New York; A. Baird Hastings, Ph.D., professor of biologic chemistry, Harvard University; Dr. George M. Smith, Pine Orchard, Conn., director, Anna Fuller Fund, Yale University Medical School; Dr. Sherwood Moore, director, Edward Mallinckrodt Institute of Radiology, Washington University School of Medicine, St. Louis; Dr. Frank E. Adair, New York, president of the American Cancer Society and executive officer of Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, and Dr. Andrew C. Ivy, professor of physiology, Northwestern University Medical School, Chicago.

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Deaths

Frederick Cook Warnshuis ✠ for twelve years speaker of the House of Delegates of the American Medical Association, was found dead January 7 at his home in Windsor, Ontario, aged 65.

Dr. Warnshuis was born in Alton, Iowa, June 16, 1880. He graduated at Hope College, Holland, Mich., and took his degree at the Grand Rapids Medical College in 1902. Dr. Warnshuis had served as president and secretary of the Kent County Medical Society and as secretary of the Michigan state board of medical registration. He was named secretary of the Michigan State Medical Society in 1913, becoming editor of its journal a few years later. In 1934 he resigned both positions to join the California Medical Association as secretary-treasurer and director of public relations. In 1938 he became president of the newly organized American Medico-Legal Association and editor in chief of its journal, with headquarters in Boston. In 1941 he went to the American Consulate in Windsor as acting assistant surgeon, U. S. Public Health Service.

His service with the American Medical Association included membership in the House of Delegates in 1913-1914, 1916, 1918 and from 1920 to 1934. He was Vice Speaker of the House from 1920 to 1922 and Speaker from 1922 to 1934.

During World War I, Dr. Warnshuis was chief and later commanding officer of the Surgical Service, Base Hospital number 99, American Expeditionary Forces.

Fred Gordon Johnson ✠ Iron River, Wis.; Rush Medical College, Chicago, 1900; born in Oregon, Wis., June 30, 1872; an Affiliate Fellow of the American Medical Association; life member of the State Medical Society of Wisconsin; twice president of the Ashland-Bayfield-Iron Counties Medical Society; served as president of the district medical society, nine years a councilor of the state society, seven years a preceptor of the University of Wisconsin Medical School and a collaborator in establishing and conducting the first tuberculosis sanatorium in Wisconsin; in 1939 was presented with the fifteenth annual Council Award of the State Medical Society of Wisconsin for outstanding work and devotion to duty; died in St. Francis Hospital Superior, September 2, aged 73, of intestinal obstruction.

Joseph Lloyd Warne ✠ Pottsville, Pa.; Jefferson Medical College of Philadelphia, 1908; born in Nanticoke, Pa., on April 18, 1885; first vice president of the Medical Society of the State of Pennsylvania; fellow of the American College of Surgeons; medical director, founder and owner of the Lemos B. Warne Hospital, which he established in 1932, presenting it to the community on Feb. 1, 1945 as a memorial to his wife; awarded a certificate of meritorious award by Governor Edward Martin in recognition of services to his community; at one time chief surgeon at the Pottsville Hospital; president of the Pottsville Industries, Inc.; member and past president of the chamber of commerce; died October 8, aged 60, of coronary occlusion.

Renos Harlan Richards, Patricksburg, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1903; born Sept. 8, 1876; member of the American Medical Association; member of the state house of representatives; served as president of the Owen County Medical Society and as county coroner and treasurer of Owen County; first lieutenant, medical corps, Indiana National Guard, 1910-1915; captain in the medical corps on the Mexican border, 1916-1917; major in the medical corps, American Expeditionary Forces, in France during World War I; lieutenant colonel, medical reserve corps, U. S. Army, not on active duty; died in the Robert W. Long Hospital, Indianapolis, September 9, aged 69, of coronary occlusion.

Howard Allison McKnight ✠ Springfield, Ohio; University of Pennsylvania School of Medicine, Philadelphia, 1910; born in Philadelphia, Dec. 31, 1884; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; past president of the Clark County Medical Society; served during World War I; at one time on the faculty of the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania, and associate professor of surgery at the Woman's Medical College of Pennsylvania, Philadelphia; on the staff of the Springfield City Hospital, where he died October 7, aged 60, of lymphosarcoma of the retroperitoneal glands.

Leonidas M. Stokes ✠ Walterboro, S. C.; Medical College of the State of South Carolina, Charleston, 1906; born in 1879; past president and vice president of the South Carolina Medical Association; served as president of the Colleton County Medical Society and as a member of the board of medical examiners; formerly medical director of the Charles Es'Dorn Hospital; presented with a silver service in 1939 by the alumni association of the Medical College of the State of South Carolina in recognition of his services in the securing of new buildings for the medical college, which he served as a member of the board of trustees; died September 23, aged 66, of polycythemia vera.

William Hopton Smith ✠ Goldsboro, N. C.; University of Pennsylvania Department of Medicine, Philadelphia, 1906; born in Goldsboro, N. C.; May 29, 1882; served as president of the state board of medical examiners; served as president and director of the North Carolina Tuberculosis Association; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; vice president of the Medical Society of North Carolina, of which he had been an honorary member; member of the Southern Medical Association; on the staff of the Goldsboro Hospital; died September 29, aged 63, of relapsing virus pneumonia.

Charles Wilson Mills ✠ Tucson, Ariz.; Johns Hopkins University School of Medicine, Baltimore, 1908; born in South Williamstown, Mass., September 1, 1879; specialist certified by the American Board of Internal Medicine; member of the American College of Chest Physicians and the American Clinical and Climatological Association; fellow of the American College of Physicians; chief of visiting staff, Desert Sanatorium and Institute of Research; member of the courtesy staff, St. Mary's Hospital and Sanatorium; chairman, medical advisory board, Arizona Selective Service; died September 29, aged 66, of coronary occlusion.

Robert George McAliley ✠ Atlanta, Ga.; Johns Hopkins University School of Medicine, Baltimore, 1912; associate professor of pediatrics at the Emory University School of Medicine; specialist certified by the American Board of Pediatrics, Inc.; served during World War I; on the staffs of the Emory University, Grady and Crawford Long Memorial hospitals; joint author of "Diseases of the Respiratory System in Infants and Children" (Clinical Pediatrics); died in the Walter Reed General Hospital, Washington D. C., September 15, aged 66, of bacterial endocarditis.

Norman Barkan, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1945; intern at the Mount Sinai Hospital, where he died September 28, aged 23.

Wallace Linn Brittain ✠ Conway, Ark.; University of Arkansas School of Medicine, Little Rock, 1928; chief of staff at the Conway Memorial Hospital; died September 4, aged 41.

William Edgar Buck, Randolph, Mass.; Medical School of Maine, Portland, 1914; member of the American Medical Association; died in the Milton (Mass.) Hospital September 15, aged 58.

Otto Charles Christmann, Seattle; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; member of the American Medical Association; secretary-treasurer of the Seattle Academy of Surgery; part time epidemiologist in the venereal disease division of the city health department during World War II; served on the staffs of the Columbus, Doctors and Harborview County hospitals; died December 9, aged 63, of coronary disease.

Roy Oscar Cooley ✠ West Palm Beach, Fla.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; past president of the Palm Beach County Medical Society; served during World War I; served as chief of staff of the Good Samaritan Hospital, as chairman of the Palm Beach County Chapter of the American Red Cross and as president of the Rotary Club; died in a hospital at Asheville, N. C., October 3, aged 59, of cerebral hemorrhage.

Arthur Howard Davison, Milton, Mass.; Harvard Medical School, Boston, 1902; member of the American Medical Association; served on the staff of the Milton Hospital; medical director of the Boston Mutual Life Insurance Company and president of the Codman Cooperative Bank of Dorchester; died in the New England Baptist Hospital Boston September 26, aged 71, of carcinoma of the stomach.

Chester Hyman Fairchild, Woodland, Calif.; Cooper Medical College, San Francisco, 1906; member of the American Medical Association; fellow of the American College of Surgeons; on the staff of the Woodland Clinic Hospital, where he died September 6, aged 74.

Russell Milton Farnham, Glendale, Calif.; University of Minnesota Medical School, Minneapolis, 1922; president of the Glendale Branch of the Los Angeles County Medical Association in 1931; served overseas during World War I; interned at the Children's Hospital in Los Angeles; member of the board of directors of the Physicians and Surgeons Hospital; died September 11, aged 53.

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Henry Sall Fischer, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1918; member of the American Medical Association; fellow of the American College of Surgeons; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; on the staff of the Beth Moses Hospital; died in the Beth David Hospital, September 21, aged 50.

Robert Joseph Flynn ✙ Scranton, Pa.; Jefferson Medical College of Philadelphia, 1916; served overseas during World War I; for many years attached to the regional Veterans Bureau; for a time surgeon for the city police department, chief physician for the city gas and water company and deputy coroner; on the staff of the Scranton State Hospital, Mercy Hospital and St. Mary's Hospital, where he died September 28, aged 49, of cirrhosis of the liver.

John Fisher Gainer ✙ Danville, Ill.; University of Illinois College of Medicine, Chicago, 1922; assistant in surgery from April to September 1922 at his alma mater; on the staffs of the Lakeview and St. Elizabeth hospitals; died October 21, aged 48, probably of coronary thrombosis.

Dewell Gann Sr. ✙ Benton, Ark.; Southern Medical College, Atlanta, 1886; at one time vice president of the Arkansas Medical Society; president of the Saline County Medical Society; surgeon for many industrial plants and four railroads in Benton; died September 25, aged 82.

Robert S. Garnett, Tacoma, Wash.; Georgetown University School of Medicine, Washington, D. C., 1903; member of the American Medical Association; died in St. Joseph Hospital September 29, aged 68, of cerebral hemorrhage.

Frederick Christian Gerlach ✙ San Jose, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; served during World War I; physician for the University of Santa Clara; died in the O'Connor Sanitarium October 4, aged 74, of heart disease.

Oramel E. Haney, Portland, Maine; Medical School of Maine, Portland, 1903; member of the American Medical Association; served during World War I; on the staffs of the Maine General Hospital and the Maine Eye and Ear Infirmary; died September 4, aged 68, of coronary thrombosis.

Henry Harmon, Pontiac, Mich.; Chicago Homeopathic Medical College, 1889; died October 29, aged 82, of cerebral hemorrhage.

Wayne Pearson Harrison ✙ New York; University of Vermont College of Medicine, Burlington, 1928; specialist certified by the American Board of Ophthalmology; on the staff of the New York Eye and Ear Infirmary; died October 20, aged 49, of heart disease.

Benjamin Woodward Hazell, Baltimore; Maryland Medical College, Baltimore, 1905; died October 3, aged 73, of arteriosclerotic cardiovascular disease.

Charles Stephen Hoover, Cleveland Heights, Ohio; Western Reserve University Medical Department, Cleveland, 1901; served during the Spanish-American War and World War I; died in the University Hospitals, Cleveland, October 7, aged 69, of cardiovascular disease and probably coronary occlusion.

Alexander George Hough ✙ Beaver Dam, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1905; served several terms as secretary of the Dodge County Medical Society; councilor of the first district of the State Medical Society of Wisconsin; served during World War I; died in St. Joseph's Hospital September 26, aged 75, of diabetic gangrene.

Orlan T. Hughes, Lexington, Ky.; University of Louisville Medical Department, 1909; member of the American Medical Association; died September 23, aged 63, of hypertensive heart disease.

John Hynds, Buffalo, Wyo.; University Medical College of Kansas City, Mo., 1908; served during World War I; formerly medical examiner for the Chicago, Burlington and Quincy Railroad; died August 2, aged 65, of chronic encephalitis lethargica.

Robert Moore Johnston, Ocoee, Fla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; served one term as mayor of Ocoee; for eight years engaged in missionary work in West Africa; died September 18, aged 74, of heart disease.

Robert DuVal Jones Jr. ✙ Norfolk, Va.; University of Pennsylvania School of Medicine, Philadelphia, 1924; member of the Southern Society of Clinical Surgeons; interned at the Robert Packer Hospital in Sayre, Pa.; formerly fellow in surgery at the Mayo Foundation and assistant resident surgeon at St. Mary's Hospital, both of Rochester, Minn.; affiliated with the Leigh Memorial Hospital; died in a hospital at Winston-Salem, N. C., September 5, aged 46.

Demeter Kalinoff ✙ Stillwater, Minn.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; attending physician at the Minnesota State Prison from 1903 to 1935; on the staff of the Lakeview Memorial Hospital; died in the Miller Hospital, St. Paul, September 15, aged 74.

William R. Knabe ✙ Orleans, Mass.; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1903; member of the Medical Society of the State of New York; died September 10, aged 66.

Wladyslaw August Kuflewski, Chicago; College of Physicians and Surgeons of Chicago, 1894; fellow of the American College of Surgeons; past president of the city public library board and past vice president of the board of education; for many years served as chief medical examiner of the Polish National Alliance; since 1902 chief surgeon of the Second Regiment of the Illinois National Guard; senior attending surgeon, St. Mary of Nazareth Hospital, where he died October 23, aged 75, of cerebral hemorrhage.

Alexander Kulchinsky, Chicago; Chicago College of Medicine and Surgery, 1916; died in the Columbus Hospital October 13, aged 77.

William Theodore Langley, Sanford, Fla.; Medical College of Alabama, Mobile, 1899; member of the American Medical Association; served overseas during World War I; at various times city and county physician; died September 11, aged 69, of cerebral hemorrhage and hypertension.

Hartland Law, San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1893; died September 27, aged 87, of coronary thrombosis.

Stuart Johnston Lawson, New London, Conn.; University of Virginia Department of Medicine, Charlottesville, 1905; member of the American Medical Association; on the staff of the Lawrence and Memorial Associated Hospitals; died September 8, aged 65.

Sidney Harold Levy ✙ Buffalo; University of Buffalo School of Medicine, 1915; member of the Radiological Society of North America, Inc.; served during World War I; died in the Buffalo City Hospital September 22, aged 52, of bronchopneumonia and Parkinson's disease.

Jesse Herbert Libby ✙ Weymouth, Mass.; Harvard Medical School, Boston, 1892; an Affiliate Fellow of the American College of Surgeons; served as a member of the school committee; on the staff of the South Shore Hospital, where he died September 25, aged 78, of arteriosclerosis and bronchopneumonia.

James Williamson Maloy, Rhine, Ga.; Hospital Medical College, Eclectic, Atlanta, 1911; died September 1, aged 60.

Albert Brown McKee ✙ Redwood City, Calif.; Cooper Medical College, San Francisco, 1886; clinical professor of surgery (ophthalmology) emeritus at the Stanford University School of Medicine; died in Woodside August 19, aged 82, of heart disease.

Francis Joseph McMenamin ✙ Oneonta, N. Y.; Long Island College Hospital, Brooklyn, 1907; on the staff of the Aurelia Osborn Fox Memorial Hospital, where he died October 2, aged 65, of coronary thrombosis.

James A. McVeigh, Detroit; Medical College of Ohio, Cincinnati, 1896; for many years physician for the city health department; associated with the Ford Motor Company Medical Center; died in the Henry Ford Hospital October 3, aged 73, of carcinoma of the liver.

Charles Price Mercer, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1891; formerly assistant medical inspector for the bureau of health; on the staff of the Stetson Hospital; died in the Episcopal Hospital September 19, aged 80, of bronchopneumonia and heart disease.

James Charles Millman, Platteville, Wis.; Northwestern University Medical School, Chicago, 1893; died October 9, aged 84, of myocardial failure.

Arthur Hugh Montgomery ✙ Montgomery, Ala.; Atlanta Medical College, 1898; served as city physician; died in St. Margaret's Hospital October 5, aged 72, of coronary thrombosis.

William Edward Mulcahy, Boston; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1912; died September 2, aged 61.

Brian Francis Patrick Murphy, Baltimore; Georgetown University School of Medicine, Washington, D. C., 1943; interned at the Union Memorial Hospital; served as a fellow in pathology at the Johns Hopkins Hospital; died September 10, aged 30.

Henry Akin Nesbitt, Clarksville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1900; died September 23, aged 77, of cancer.

Alonzo Bond Persley, Detroit; University of Michigan Medical School, Ann Arbor, 1915; served during World War I; died in the Harper Hospital September 19, aged 54, of an old coronary thrombosis.

George Trecise Polk, Pittsburgh; Albany (N. Y.) Medical College, 1917; member of the American Medical Association; specialist certified by the American Board of Otolaryngology; in transport service during World War I; formerly on the staff of the Brooklyn Eye and Ear Hospital and consulting otolaryngologist at the Matteawan State Hospital, Beacon; on the staff of the Shadyside Hospital; died September 6, aged 50, of heart disease.

Russell Lee Pope, Richmond, Ky.; University of Louisville School of Medicine, 1932; member of the American Medical Association; president of the Pope Hospital, where he died October 14, aged 37, of injuries received in an automobile accident.

Lucien Griggs Rice ✠ Albuquerque, N. M.; New York University Medical College, 1898; Cornell University Medical College, New York, 1899; past president of the New Mexico Board of Medical Examiners; on the staffs of the Presbyterian and St. Joseph's hospitals; died October 2, aged 70, of coronary thrombosis.

Thomas Duncan Robertson ✠ The Dalles, Ore.; University of Oregon Medical School, Portland, 1930; member of the American Society of Clinical Pathologists; member and formerly president of the state board of health; formerly secretary of the Oregon State Medical Society; at one time on the staff of St. Vincent's Hospital in Portland; associated with The Dalles Clinic; died September 15, aged 42, of bronchopneumonia.

Benjamin D. Satek ✠ Chicago; Chicago Medical School, 1917; for many years connected with the city department of health; died October 7, aged 62, of cerebral hemorrhage.

Charles Bushfield Schildecker ✠ Pittsburgh; Columbia University College of Physicians and Surgeons, New York, 1901; served for a time as coroner's physician; for many years on the staff of the Western Pennsylvania Hospital, where he died November 12, aged 68, of coronary occlusion.

Harvey Frederick Scholl ✠ Prospect Park, Pa.; Jefferson Medical College of Philadelphia, 1893; for many years school physician; on the staff of the Taylor Hospital, Ridley Park, where he died October 7, aged 74, of acute nephritis.

Walter Preston Scott, Lexington, Ill.; Keokuk (Iowa) Medical College, 1898; died in the Mennonite Hospital, Bloomington, September 16, aged 80, of a fractured hip received in a fall.

Ulysses Sheridan Short ✠ St. Louis; St. Louis University School of Medicine, 1903; active on the council and past president and secretary of St. Louis County Medical Society; served in France during World War I; died October 18, aged 67, of cirrhosis of the liver and gastroenteritis.

Charles Elmer Shultz, Castle Shannon, Pa.; Maryland Medical College, Baltimore, 1911; member of the American Medical Association; served on the staff of the Southside Hospital in Pittsburgh; died in the Allegheny General Hospital, Pittsburgh, September 29, aged 64.

George Albert Sihler Sr. ✠ Litchfield, Ill.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1883; since 1890 a member of the board of directors and since 1907 vice president of the First National Bank; for many years a member of the board of directors of the grade school; instrumental in establishing the city water department; died October 24, aged 83, of lymphosarcoma.

Richard Clyde Sinclair, Pine Lawn, Mo.; Washington University School of Medicine, St. Louis, 1933; first lieutenant, medical reserve corps, U. S. Army, not on active duty; died September 21 in the Missouri Baptist Hospital, St. Louis, aged 37, of bilateral lobar pneumonia, following an accident in which he incurred a fracture of the lumbar vertebra.

John Henry Slevin, Detroit (licensed in Michigan in 1901); member of the American Medical Association; fellow of the American College of Surgeons; served during World War I; deputy collector of internal revenue; member of the consulting staff of the Grace Hospital, where he died September 18, aged 73, of carcinoma of the esophagus.

David M. Sloan, Sturgis, Ky.; Louisville Medical College, 1898; member of the American Medical Association; past president of the Union County Medical Society; served on the staffs of Our Lady of Mercy Hospital, Morganfield, and the Sturgis Hospital, where he died October 10, age 74, of uremia.

Charles Gregory Smith, Cincinnati; Eclectic Medical Institute, Cincinnati, 1890; formerly on the faculty of his alma mater; died in the Bethesda Hospital September 3, aged 75, of cerebral hemorrhage.

Henry Spence ✠ Jersey City, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1892; fellow of the American College of Surgeons; past president of the state department of health; served as a member of the city board of health; member of the consulting staff of the Christ Hospital and the Margaret Hague Maternity Hospital; died in the Jersey City Medical Center November 22, aged 79.

William Albert Spencer ✠ Wolcott, Ind.; Michigan College of Medicine and Surgery, Detroit, 1901; died October 3, aged 73.

Woodson Washington Spicer, Calhoun, Ky.; Louisville and Hospital Medical College, 1908; member of the American Medical Association; served as secretary-treasurer of the McLean County Medical Society; on the examining board of the Selective Service; died in the City Hospital, Owensboro, September 26, aged 65, of heart disease.

Robert Edward Sproule, St. Petersburg, Fla.; University of Dublin School of Physic, Trinity College, Dublin, Ireland, 1883; served in the medical corps of the British navy during World War I; died October 12, aged 88.

Gilbert H. Stannard ✠ Sheboygan, Wis.; Milwaukee Medical College, 1904; past president of the Sheboygan County Medical Society; affiliated with the Sheboygan Memorial Hospital, where he died September 4, aged 69, of coronary thrombosis.

Daniel Freeman Stough Sr., Geary, Okla.; Illinois Medical College, Chicago, 1898; member of the American Medical Association; honorary member of the Oklahoma State Medical Association; served as a member and president of the school board, city treasurer and as mayor of Geary; died September 6, aged 70, of cerebral hemorrhage.

Peter Harold Sunde ✠ Beverly Hills, Calif.; Jenner Medical College, Chicago, 1901; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; died October 8, aged 68.

Otto H. Swantusch ✠ Angola, Ind.; Fort Wayne College of Medicine, 1905; served during World War I; died October 13, aged 61, of chronic myocarditis.

Annabel Cleveland Test, Chicago; Northwestern University Woman's Medical School, Chicago, 1895; died in the Passavant Memorial Hospital October 7, aged 74.

Bennie Everette Vowell, Carthage, Miss.; University of Tennessee College of Medicine, Memphis, 1914; member of the American Medical Association; died October 17, aged 52, of abscess of the lungs.

Rogers Fairbanks Wakefield, Pasadena, Calif.; University of Michigan Medical School, Ann Arbor, 1924; member of the American Medical Association; interned at the Los Angeles General Hospital in Los Angeles, where he had been a resident physician; member of the Los Angeles Dermatological Society; died September 2, aged 45, of coronary thrombosis.

Anthony T. Walsh ✠ Scranton, Pa.; Baltimore Medical College, 1902; on the staff of St. Mary's Hospital; served during World War I; died October 12, aged 69, of coronary disease.

Harry Goldsborough Watson, Elmhurst, N. Y.; Yale University School of Medicine, New Haven, Conn., 1898; died in the Lenox Hill Hospital, New York, October 1, aged 76, of carcinoma of the rectum.

John Walter Webb ✠ Indianapolis; Chicago Homeopathic Medical College, 1904; a member of the state board of medical examiners; on the staff of the Methodist Hospital; died October 9, aged 64, of coronary thrombosis.

Walter J. Werfelmann Sr., Syracuse, N. Y.; Syracuse University College of Medicine, 1890; member of the American Medical Association and the Syracuse Academy of Medicine; died September 2, aged 76, of carcinoma of the stomach.

Frank H. Westerschulte, Chicago; Rush Medical College, Chicago, 1895; died October 17, aged 79, of coronary thrombosis.

William Arthur Williamson, Duffee, Miss.; Mississippi Medical College, Meridian, 1907; killed October 26, aged 74, when struck by a freight train.

Charles Edwin Woods, Fitchburg, Mass.; Dartmouth Medical School, Hanover, N. H., 1890; member of the American Medical Association; past president of the Worcester North District Medical Society; served as school physician in Lunenburg and trustee of the Ritter Library; died in the Burbank Hospital October 12, aged 82, of bronchopneumonia.

Albert A. Yungblut ✠ Cincinnati; Medical College of Ohio, Cincinnati, 1903; died August 21, aged 73.

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Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 15, 1945.

Fundamental Principles for the National Health Service

Though the government bill for a national health service has not yet been presented to Parliament, there is much controversy both in the lay and in the medical press. The negotiating committee of the medical profession, which is composed of representatives of the British Medical Association, the Royal Colleges of Physicians, Surgeons, Obstetricians and Gynecologists, the Royal Scottish Medical Corporations, the Society of Medical Officers of Health and the Medical Women's Federation, has agreed to certain fundamental principles of the medical profession, which should not be infringed on by any government proposals. With these conditions the profession should find no difficulty in working out a national health service in cooperation with the government.

For a quarter of a century the medical profession has stressed the need for a complete health service. It is willing and anxious to cooperate with the government in evolving this service, for its knowledge and experience are indispensable to success. It emphasizes that good housing and social, economic and environmental circumstances are the principal factors in maintaining health and preventing disease. It urges the expansion of medical research. In the interests of the public and of medicine the profession regards the following principles as essential: 1. In the public interest the profession is opposed to any form of service which leads directly or indirectly to the profession as a whole becoming full time salaried servants of the state or the local authority. 2. The profession should remain free to exercise the art and science of medicine according to its traditions, standards and knowledge; the individual doctor should retain full responsibility for the care of the patient and freedom of judgment, action, speech and publication without interference in his professional work. 3. The citizen should be free to choose or change his family doctor, to choose, in consultation with him, the hospital at which he should be treated, and free to decide whether he uses the public service or obtains independently the medical service which he needs. 4. Doctors should, like other workers, be free to choose the form, place and type of work they prefer without government or other direction. 5. Every doctor should be entitled to participate in the public service. 6. The hospital service should be planned in natural hospital areas centered at universities in order that these centers of education and research may influence the service. 7. There should be adequate representation of the medical profession on all administrative bodies.

Driving an Automobile While Under the Influence of Insulin

In 1930 a law was enacted making it an offense to drive a car while under the influence of drink or drugs to such an extent as to be incapable of proper control of the vehicle. The drugs concerned in the legislation were chiefly morphine and cocaine. The possibility of a diabetic motorist being charged with the offense of driving while under the influence of insulin was not considered. Such a case has occurred, and the man was convicted. A fine of $10 was imposed, and his driving license was suspended for a year. The man had not eaten his normal midday meal on the day of the accident. During the afternoon he felt tingling in the fingers and took a lump of sugar. He felt tired and decided to drive home. He thought that he drove normally and did not remember the accident. An appeal was made against the sentence. His lawyer argued that there was no proof of the unlawful influence of a drug. The motorist was right in taking insulin on medical advice and was not under the influence of the drug but of insufficient food. Medical evidence was given that insulin is a drug and the judge held that the motorist had rightly been convicted. As he was entirely blameless in the matter, he did not deserve punishment. The judge therefore dismissed the case under the Probation of Offenders Act and restored the license.

The Food Problem of India

The report of the Famine Commission of India appointed by the government is based on the principle that the state must recognize its ultimate responsibility to provide enough food for all, not only to prevent famine, but to insure a healthy and vigorous population. However, some people would regard the continued increase of an already dense population as an insuperable obstacle. The population of India has increased by 100 million since 1880, and a further addition to this number must be expected in another twenty-five years. Ultimately, the report states, the rate of growth will have to be decreased. To this end the commission envisages emigration to the more sparsely settled parts of the British commonwealth and empire and the encouragement of family limitation. The diet of most of the population is unbalanced, containing too little of protective foods, such as legumes, meat, fish and vegetables. Perhaps 30 per cent of the people do not have enough of both energy building and protective foods. The poorer classes, both urban and rural, could not afford a balanced diet, even if it was available. A long term policy should have the objective of self sufficiency in cereals, the basic food of the country, with control of their price. To balance the cereals the production of legumes, vegetable oils and fruits must be increased, and potatoes, sweet potatoes and platains should be grown in great quantity.

SWEDEN

(From Our Regular Correspondent)

STOCKHOLM, Nov. 30, 1945.

Dextran

The Swedish press became incensed recently when it learned that some American physicians had stated that the Swedes had developed a new "miracle" blood substitute, called dextran, and were refusing to give out any information about it until a world patent had been acquired. A denial has now been issued saying that this is entirely false. According to Professor Arne Tiselius of Uppsala, in whose laboratory the blood substitute has been developed, there has been a definite misunderstanding. The substance dextran is well known, so there can be no question of the patenting of an "invention" in the usual sense. Dextran is a blood substitute which was developed two years ago in Uppsala and for fourteen months has been tried out clinically in hospitals in the cities of Stockholm and Örebro. Used in place of blood plasma at St. Göran's Hospital in Stockholm, it has been chiefly beneficial in cases of severe burns. Although the Swedish physicians have not yet dared to replace plasma with dextran entirely, it is hoped that the results of present experiments will warrant this shortly. In severe cases they have generally used equal parts of plasma and dextran and have been able to cure several patients whose entire bodies were covered with burns. During July and August alone, 6 patients with one fourth of their bodies severely burned by denatured alcohol were completely healed. In cases of shock, dextran has also shown excellent results. It is hoped that this new preparation will shortly be released to hospitals throughout the country.

Successful Action Against False Advertising Claims

In 1941 a bureau was established in Sweden to scrutinize all the advertising of "free drugs," i. e. drugs sold without prescription. This institution has contributed greatly to correcting all such advertising. A report has recently been published of its activities during 1944 in the daily and weekly press throughout the country. The cooperation of the press has been excellent.

Criticism was made against one or more advertisements of sixty-one "patent" medicines. The advertisements in 36 instances were corrected immediately and discontinued in 21. It was not necessary to take action against the advertisers. Generally, advertisers now ask for bureau approval before sending advertisements to the newspapers or before using them as labels or in packages as instructions. Most of the texts that have been corrected were not exaggerated or false but gave a misleading impression.

The bureau has also successfully dealt with direct or indirect publicity of merchandise such as food, reducing preparations and diet cures as well as electrical apparatus for rheumatism and arthritis. Nor has there been much difficulty with enclosures in packages or window displays. It has rarely been necessary to threaten any company or individual with denial of the use of the press.

Rare Diseases Found in Sweden

Leprosy has to all intents and purposes disappeared from Sweden, for as far as is known there are only 6 persons afflicted with the disease in the entire country. Four of them suffer from lepra anesthetica, 1 from lepra tuberosa and 1 from lepra mixta. Two of these cases were diagnosed as late as 1941 and 1944, and most of the patients are well advanced in age. Sweden's leprosarium was discontinued in 1940, so 5 of the patients are being cared for in their own homes and 1 at a home for the aged.

Another disease which Sweden has been free from for many years is spotted fever. A few cases have appeared recently, but there is no fear that it will reach epidemic proportions. A communication to doctors and others in health work has advised them of the problems which this strange (for Sweden) illness presents.

Tuberculosis in Oslo During the War

Despite the occupation of Norway and the extremely difficult living conditions throughout the war, a recent investigation of tuberculosis in Oslo during the war years has shown that there was no increased spread of this infection. It is assumed, perhaps justifiably, that this is the result of the intense campaign carried on by the Oslo Board of Health before and during the war. Although no increased spread of infection could be proved, since 1941 there has been a rather considerable increase in the morbidity of pulmonary tuberculosis. Men have been the most frequent victims, and a higher age group has been attacked. The average age of infection has changed from 10 to 15 years to the 25 to 30 age group and even higher. Simultaneously the morbidity and mortality have greatly decreased in childhood and youth and shifted to the older age groups.

New Course for Physicians

Ninety school physicians from all parts of Sweden had a rather unusual meeting in Stockholm recently. It was the opening of the first state course in school hygiene ever held here for doctors. Since there are about 900 school physicians in Sweden, the 10 per cent that attended may be considered a good representation. The questions discussed during the week's course included school hygiene, school food and the problem of too large classes. Until recent years only about 40 per cent of the children in elementary school have had proper care. It was not until 1943 that a director was appointed to coordinate the work for the entire country. This first course for school physicians is considered promising for the present and future care of the health of children in grammar schools.

MOSCOW

(From Our Regular Correspondent)

Nov. 28, 1945.

Soviet Conference on Hypertensive Diseases

A conference on hypertensive diseases, the first since the war, was held recently in Gorkiy. The conference was attended by a large number of Soviet physiologists, pathologists, internists, neuropathologists and surgeons. The agenda contained a number of urgent problems, such as pathogenesis, symptomatology, treatment and prophylaxis of hypertensive states and problems of experimental hypertension. Professor Lang of Leningrad read a paper on etiology and pathogenesis of hypertensive disease. The paper dealt with modern concepts of hypertension, hypertensive states and hypertensive diseases which occupy an important place among disorders of the central nervous system. Professor S. S. Vail, colonel of the Red Army Medical Service, Leningrad, read a paper on pathomorphology of hypertensive disease. He showed that hypertension causes injuries principally to blood vessels of the heart (57 per cent cases), less frequently to those of the brain (26 per cent) and still less to blood vessels of the kidney (8.5 per cent). In his histopathologic studies he established the significance of damage to the nuclei and fibers of the vegetative nervous system. Some original data concerning changes in basic argyrophil substances in hypertensive states were presented by A. I. Smirnova Zamkova, corresponding member of the Ukrainian Academy of Sciences at Kiev. Argyrophil substances are important in the human organism, and many disorders of the nervous and vascular systems are related to the changes in argyrophil membrane.

Professor Smirnova Zamkova showed a number of photomicrographs demonstrating changes in argyrophil substances in preparations of the heart, large blood vessels, liver and lungs obtained from human beings suffering from hypertensive disease and from rabbits in which the pressor nerves had been removed. Professor N. I. Gorev of Kiev discussed his research on experimental hypertension obtained by interrupting the activity of the pressor nerves in rabbits and in dogs. Original experiments on the role of a hypertensive factor were reported by Professor D. E. Alpern, corresponding member of the Ukrainian Academy of Sciences. He showed that in sensitized animals spinal fluid acquires clearly defined properties which cause contraction of blood vessels. Professor A. M. Gruenstein read a paper on neurologic syndromes in hypertensive disorders and on the treatment of headaches. Headaches which occur in hypertensive disease, he believes, are due to cerebral edema, which frequently is caused by the dilatation rather than by constriction of the blood vessels, by paresis and not by a spasm, by lowering rather than by increasing the vascular tonus. Professor B. F. Zelenin, member of the Academy of Medical Sciences, discussed modern methods of treatment and prophylaxis of hypertensive disease, especially the social measures that have been adopted. Professor Zelenin pointed to the effectiveness of night sanatoriums for sufferers from hypertension. These were organized in 1942 and 1943 during the siege of Leningrad. Professor L. I. Vogelsohn of Moscow reported on the prognosis of work disability and work provisions for sufferers from hypertensive disorders. He presented data provided by a detailed study of a large group of patients on the reaction to labor processes in peace and war.

Professor N. N. Priorov, scientist and deputy peoples commissar for health, and Professor V. V. Parin, secretary of the Academy of Medical Sciences, were present at the conference.

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BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, Nov. 30, 1945.

Incidence of Amebiasis and Giardiasis in Rio de Janeiro

Dr. J. Lopes Pontes has just published a paper in which he reports the results of his investigations on the incidence of parasitism by Endameba histolytica and Giardia intestinalis in the population of the city of Rio de Janeiro. For this purpose he has studied 165 individuals, 62 of whom were patients of the Misericordia General Hospital with medical or surgical diseases of the circulatory, respiratory, digestive, urogenital or muscular systems, and 103 healthy persons taken at random among industrial workers, office clerks and officers and workers in the government printing office. The specimens of feces have been examined by the Faust zinc concentration and fluctuation method. Besides Endameba and Giardia, other less pathogenic parasites, such as Ameba coli, have been searched for. Of 165 people 57 have been found positive to Ameba coli, or 34.5 per cent (30.6 per cent among hospital patients and 38.8 per cent among healthy persons), 19 have been found positive to Endameba histolytica, or 11.5 per cent (12.9 per cent among hospital patients and 10.8 per cent among healthy persons) and 19 have been found positive to Giardia intestinalis, or 11.5 per cent (4.8 per cent among hospital patients and 15.6 per cent among healthy persons). Of the 19 carriers of Endameba 14, or 78.9 per cent, showed pathologic disturbances which might have been related to the intestinal infestation. None of them have ever suffered from typical dysentery. Of the 19 positive cases of parasitism from Giardia 15, or 78.9 per cent, were silent carriers of the parasite. Discussing the question of Endameba histolytica carriers, the author emphasizes the frequency of pathogenic symptoms, although atypical, and the almost constant presence of lesions of the colon. These persons should really be considered potential patients. Treatment to eradicate the Endameba is necessary from the standpoint of the individual and the community. Of 18 foodhandlers 2 have been found to be carriers of Endameba cysts. Dr. Pontes points out that the influence of the intestinal flora and the local and general resistance of the host are factors which explain the symptomatic graduation of human amebiasis.

Bacteriologic Postmortem Investigation

At the Instituto Oswaldo Cruz of Manguinhos at Rio Drs. Guilherme Lacorte and Mário Santos did bacteriologic studies on the blood and spleen in 145 necropsies. The cultures were positive in 67 cases, and in 46 cases the isolated bacteria were the proved or probable cause of disease. The presence of bacteria in the blood and the spleen implies bacteremia at the time of death, according to the observations of Hunt and his co-workers. In the authors' cases the presence of bacteria in these two sites was related to anatomic lesions of bacterial origin. When the bacteria were present only in the spleen, bacteremia probably was not present at the time of death. In rare cases bacteria were isolated from the lesions and not from the blood and spleen. Bacteriologic examinations at necropsy may be able to establish the diagnosis of obscure and unnoticed infections.

Brief Items

At the Brazilian Academy of Sciences of Rio de Janeiro Dr. Carlos Foa, associate professor of physiology at the University of São Paulo, presented a film entitled "The Conditioned Reflexes in the Formation of Human Personality," an invaluable gift from the Russian physiologist Pavlov.

A new hospital for children, the Casa da Criança, has been opened at Cuiabá (population 57,000) in the state of Matto Grosso. The new institution is connected with the Matto Grosso state department of health.

Dr. Genival Londres has been appointed medical superintendent of the Misericordia Hospital of Rio de Janeiro. Dr. Londres is a leading practitioner of cardiology in this city. He succeeds Dr. Paulo Cesar de Andrade. Dr. Iseu de Almeida e Silva has been appointed head of the department of surgery of the Misericordia Hospital. Dr. Silva was one of the principal assistants of Dr. Paulo Cesar de Andrade in that department.

Personal

Dr. Oscar Riddle of the Carnegie Foundation, Washington, D. C., is now in Rio de Janeiro. He has given lectures at the auditorium of the Moncorvo Filho Hospital and at the Brazilian Academy of Sciences on "Some Aspects of the Estrogens" and on "Endocrine Organs and Human Constitution."

Dr. Antonio Maltez has been appointed professor of gynecology at the Medical School of Salvador in the state of Bahia. He succeeds Dr. Aristides Maltez, his father, who was a distinguished gynecologist in that city.

Dr. Austregesilo Filho, associate professor of clinical neurology at the University of Rio de Janeiro, has recently been elected a member of the National Academy of Medicine of Rio de Janeiro, where he succeeds Dr. Artidonio Pamplona. At the weekly meeting Dr. Austregesilo Filho read a paper on "Tuberous Sclerosis and Neurodiaplasia."

Dr. A. Lourenço Jorge, professor of surgery at the School of Medical Sciences of Rio de Janeiro, was honored at a meeting held by many physicians of this city because of his election to the Brazilian Academy of Military Medicine.

Dr. Carlos R. de Morais has been appointed professor of otorhinolaryngology at the Medical School of Salvador, in the state of Bahia. He succeeds his father, Dr. A. Rodrigues de Morais.

Dr. Augusto Brandão has just completed twenty-five years as professor of surgery at the Rio de Janeiro University. Several ceremonies took place on this occasion at the Santa Casa hospital, at the Brazilian College of Surgeons and at the University to honor Dr. Brandão. Dr. Augusto Paulino, Dr. Joaquim Britto, Dr. Arnaldo de Moraes and Dr. Genival Londres spoke at the ceremonies conveying to Dr. Brandão the commendation and applause of the Brazilian physicians for the valuable work he has done as a professor at the university and as a leader of modern surgery in Brazil.

Marriages

WILLIAM A. HERATH, Joliet, Ill., to Miss Marvis Ludeman of Elmore, Minn., at Wheaton, Ill., September 15.

NELSON MONTGOMERY SMITH, Winchester, Va., to Miss Catharine Lee Palmer of Urbanna, October 11.

ARTHUR FLETCHALL WOODWARD, Washington, D. C., to Miss Beth Harding of Kilmarnock, Va., August 25.

DOCTOR ERNEST WARD JR., Durham, N. C., to Miss Sara Dockery Henry of Lumberton, October 27.

THOMAS O. WHELESS, Louisburg, N. C., Miss Lois Brown of Rocky Mount in Atlanta, September 1.

WARREN JUSTIN TAYLOR to Miss Marjorie Marian Hutchins, both of Hanover, N. H., September 15.

ALEXANDER RUSH, West Chester, Pa., to Miss Carol MacD. Smith in Bryn Mawr, September 15.

LE ROY M. A. MAEDER, Philadelphia, to Miss Albertine M. Reichle of Detroit, November 11.

EDWARD N. ROBERTS, Pocatello, Idaho, to Miss Montez Kennedy of Lawton, Okla., August 5.

STUART HODGES WALKER, New York, to Miss Frances Marie Taylor in Atlanta, March 10.

HOWARD V. ZEIGEL to Miss Eleanor Mae Nelson, both of Cleveland, Miss., October 12.

Correspondence

AN EARLY OBSERVATION ON PENICILLIN

To the Editor:—Considering the interesting nature of the subject, it is a curious fact that those who have written about the discovery and development of penicillin have overlooked the report of a pioneer investigator.

The selective bacteria-inhibiting property of the mold Penicillium was observed and described by the physicist John Tyndall in the year 1875. His communication to the English Royal Society was published in part one of the *Philosophical Transactions* for 1876.

In section 7 of his essay on "Optical Deportment of the Atmosphere in Relation to Putrefaction and Infection" he relates:

> Adjacent to the closed cases was placed a series of three exposed tubes, containing a liquid prepared in precisely the same way. On the 4th of October the exposed tubes were all turbid, and swarmed with *Bacteria*. In two of the tubes they were distinctly more numerous and lively than in the third. Such differences between sensibly conterminous tubes, containing the same infusion, are frequent. On the 9th, moreover, the two most active charged tubes were in part crowned by beautiful tufts of *Penicillium glaucum*. This expanded gradually until it covered the entire surface with a thick tough layer, which must have seriously intercepted the oxygen necessary to the bacterial life. The *bacteria* lost their translatory power, fell to the bottom and left the liquid between them and the superficial layer clear. [The opinion that a pellicle destroyed subjacent bacteria by depriving them of oxygen had been expressed by Pasteur.]
>
> Another difference pointing to differences in the unseen life of the air, was shown by these tubes. The turbidity of the two mould-crowned ones was colourless, exhibiting a grey hue. The third tube, the middle one of the three, contained a bright yellow-green pigment, and on its surface no trace of mould was to be seen. It never cleared, but maintained its turbidity and its bacterial life for months after the other tubes had ceased to show either. It cannot be doubted that the mould-spores had fallen into this tube also, but in the fight for existence the colour-producing *Bacteria* had the upper hand. Six other tubes, similarly exposed, showed the grey muddiness: all of them became thickly covered with mould, under which the *bacteria* died or passed into a quiescent state, fell to the bottom, and left the liquid clear.

In section 25 of the dissertation he reports:

> The mutton [infusion] in the study gathered over it a thick blanket of *Penicillium*. On the 13th it had assumed a light brown colour, "as if by a faint admixture of clay"; but the infusion became transparent. The "clay" here was the slime of dormant or dead *Bacteria*, the cause of their quiescence being the blanket of *Penicillium*. I found no active life in this tube, while all the others swarmed with *Bacteria*.

In section 26 of his memoir Tyndall describes the cultural characteristics of "three different kinds of penicillium" and notes:

> The same absence of uniformity was manifested in the struggle for existence between the *Bacteria* and the *Penicillium*. In some tubes the former were triumphant; in other tubes of the same infusion the latter was triumphant.

One could say of Tyndall what Helmholz said of Thomas Young, "His idea lay buried and forgotten in the folios of the Royal Society until a new generation gradually made the same discovery." Tyndall, however, achieved fame as a physicist while still living and the University of Tübingen awarded him the degree of M.D. (honoris causa) in recognition of other contributions to medical knowledge.

RUSSELL F. MADDREN, M.D., Hackensack, N. J.

THE PETIT MAL EPILEPSIES

To the Editor:—In Dr. Lennox's article on the petit mal epilepsies, which appeared in the Dec. 15, 1945 issue of THE JOURNAL, he rightfully points out the close relationship between the pyknolepsies and the petit mal epilepsies. Dr. Jelliffe and I had come to the same conclusion as far back as 1935, when we reported our findings in the April issue of the *Archives of Neurology and Psychiatry* (**33**:752). At that time we had reviewed all the cases of pyknolepsy reported in the literature and added our own observations.

JOHN NOTKIN, M.D., Poughkeepsie, N. Y.

TREATMENT OF BLACK WIDOW SPIDER BITE

To the Editor:—On page 1016 of the issue of Dec. 8, 1945 there appears an article on treatment of the bite of a black widow spider which exemplifies an overzealous search for symptoms with an apparent lack of consideration for the comfort of the patient.

The most elementary knowledge of therapeutics would indicate treatment, the first suggested by Osler's Practice, which has been satisfactory to both the patient and myself during an experience extending over forty years of practice in a Southern rural region. One-fourth grain (0.016 Gm.) of morphine, repeated as necessary, will afford relief, and nature will do the rest. The statement that "six and one-half hours after the bite the patient still showed no sign of having obtained relief," while they had, probably in desperation, given one-half grain (0.032 Gm.) of codeine sulfate, suggests a prejudice against narcotics which is difficult for a country practitioner to understand. I frequently give even a child one-half grain of codeine, but I use the phosphate—it's soluble.

R. E. HALE, M.D., Bellamy, Ala.

Bureau of Investigation

SOME MISCELLANEOUS MEDICAL FRAUDS

A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following is an abstract of one such order:

Diamonex Company.—This Chicago concern carried on a mail-order business in the sale of a product called "Diamonex." This, it represented, would, when used as directed, "safely, quickly and completely overcome distressing and dangerous symptoms" and "effect a satisfactory reduction in high blood pressure, regardless of the failure of previous treatment, however lengthy, or of the seriousness of the connected ailment." The nostrum was advertised in periodicals of national circulation and through written and printed matter sent through the mails. One claim called the product the "discovery of a heart specialist," another "the private formula of a recognized heart specialist" which "has been tested clinically for several years . . . at a hospital," and still another assertion was that "results are speedy—within as short a time as two weeks sufferers often find that Diamonex has accomplished 75% of the total reduction possible with this formula." There was also included in the circular matter something entitled "Extract from report of clinical investigation on Diamonex," but since no source was given for the controls, this naturally means nothing. Of course, there were the usual testimonials and a money-back guaranty. An investigation of the scheme by the Post Office Department culminated in a hearing held in Washington in February 1944, at which one Martin Coughlin and an attorney were present to represent the Diamonex Company. The attorney was sworn as a witness, but did not testify. One government witness was a chemist of the Food and Drug Administration, who testified that his analysis of Diamonex tablets did not materially differ from the formula printed on the label, showing the presence of sodium nitrite, aminophyllin and carbromal. Two Senior Medical Officers of the same federal agency testified that high blood pressure is the result of various causes, some of which are as yet unknown; that proper scientific diagnosis of the condition calls for thorough physical examinations, X-rays and laboratory tests, so that the cause of each case may be ascertained and removed if possible, and that there is no single therapy which could be used scientifically in all cases of the condition, since they require highly individualized treatment. They testified, further, that of the three declared ingredients of Diamonex, sodium nitrite is known as a vasodilator, aminophyllin as a stimulant, and carbromal as a sedative; that the first-named, though capable of dilating some blood vessels, does not affect the particular ones causing the high blood pressure, those known as arterioles, and hence is useless in treating the condition, as well as objectionable in that it interferes with the proper functioning of the kidney; that aminophyllin, though a stimulant and a dilator as well, is of no value in treating hypertension, and either does nothing further for the condition or raises the pressure by the extra load which it puts on the heart, and that the third ingredient, carbromal, is not present in Diamonex in sufficient amount to produce sleep, will not relieve sleeplessness, restlessness or nervousness, or be of any value in treating hypertension. The Diamonex concern replied through its attorney's brief that the representations made in its literature as to the product's effectiveness in treating high blood pressure did not justify the charges made against it by the Post Office Department, but a review of the advertising showed this claim to be invalid. On May 25, 1944, the Post Office Department issued a fraud order debarring the Diamonex Company and its officers and agents from the mails.

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Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Drunkenness: Probative Value of Chemical Tests Showing Nonintoxication Is Question for Jury.—The plaintiff, Dashiell, sued for damages to his automobile resulting from a collision with one of the defendant's busses, the collision allegedly having been caused by the negligent operation of the bus. From a judgment in favor of the plaintiff, and an order denying defendant's motion for a new trial, the defendant appealed to the court of appeals of Georgia, division number 2.

At the trial the defendant contended, among other things, that the plaintiff was under the influence of intoxicating liquor at the time of the accident. This the plaintiff denied, although he admitted to having taken two or three social drinks of whisky during the evening prior to the accident. To rebut defendant's contention further, however, the plaintiff offered the testimony of Lieutenant Sackett, a chemist at Camp Wheeler. The witness qualified as an expert by stating his long experience in laboratory work and in the laboratory department of Camp Wheeler, Georgia. He testified that he had performed a blood alcohol test of the plaintiff about an hour and a half after the accident and that the test was made according to the standard method used by the United States Army in making such blood tests. He stated that in his opinion, based on the results of such test, the plaintiff was not so under the influence of liquor at the time of the accident as to affect his ability to drive an automobile properly. The specific result of the test was not stated in the report of this case. Defendant objected to the admission of this testimony on the ground that it was irrelevant, immaterial, prejudicial and of no probative value.

The court of appeals held, in effect, that such testimony was neither irrelevant, immaterial nor prejudicial and said that under the circumstances the evidence was properly admitted and that its probative value was to be determined by the jury. The jury found for the plaintiff. We are of the opinion, said the court, that the verdict is authorized by the evidence. The judgment for the plaintiff was accordingly affirmed.—*Macon Busses, Inc. v. Dashiell, 35 S. E. (2d) 666 (Ga., 1945).*

Workmen's Compensation Acts: Conflict in Medical Testimony No Bar to Award for Hernia.—The claimant filed for compensation for injuries resulting in a hernia alleged to have been sustained during the course of his employment with the Bell Aircraft Corporation, and from an award in his favor the defendant corporation and its insurer appealed to the court of appeals of Georgia, division number 1.

The undisputed testimony of the claimant showed that, while pushing a rack weighing some 800 pounds, he strained himself and felt as though he had pushed something loose down in his groin. He did not associate the pain with either side but stated that he was in pain all over the lower part of his stomach. This occurrence took place on Jan. 15, 1944, and the claimant, on notifying the foreman of the circumstances, was immediately sent to Dr. Bailey, one of defendant's physicians, for first aid treatment. Dr. Bailey found that the claimant was suffering from a hernia and prescribed a suspensory for the claimant to wear. Claimant continued to work at lighter work up to March 1, 1944, but on that date he returned to his home and remained in bed most of the time for ten or eleven weeks. On April 4 claimant visited Dr. Coker, not one of defendant's physicians, and was found to be suffering from a hernia. Dr. Coker secured a truss for the claimant to wear which enabled the claimant to do some light work as a carpenter and to do a little work around his farm. He testified that his stomach and groin still pained him at that time, however. In conclusion the claimant stated that he was in need of an operation for hernia, was at the time of the hearing seeking such an operation and that he had never refused any operation nor been offered one by the defendant.

Dr. Brown, another of defendant's physicians, was the only physician who testified at the hearing, the medical evidence being substantially as follows: Dr. Bailey found a hernia on the left side as a result of his examination made on January 15, the date of the accident. Dr. Brown found no hernia to exist on the date of February 28, when he examined the claimant. He further testified, concerning his own examination, that the claimant had given a history of kidney stones on the left side at the age of 20 and also a history of having a back injury following a motorcycle accident. Dr. Coker, who examined the claimant on April 4, found an inguinal hernia on the right side. Dr. Wiseley, also one of the defendant's physicians, examined the claimant on May 8, 1944 and found nothing wrong with the claimant. Dr. Wiseley, it appeared, had examined the claimant because he wanted a medical release, but this was refused. Finally Dr. Brown testified that an examination of the claimant at the time of the hearing disclosed a right inguinal hernia. Dr. Brown was unable to answer as to why Dr. Bailey found a hernia on the date of the accident, whereas the witness was unable to find one on February 28, nor could he explain why Dr. Coker found an inguinal hernia on the right side on April 4, whereas Dr. Wiseley found nothing wrong with the claimant on May 8.

On the basis of this evidence the director found that the claimant was suffering from a hernia as a result of the accident on January 15, that said hernia occurred immediately after the accident, that said accident had not aggravated a preexisting condition that the claimant may or may not have had as a result of a motorcycle accident or kidney stone, and that the hernia existed at the time of the hearing. In making an award in favor of the claimant the director also ordered the defendant to tender adequate medical care and hospitalization for the repair of the right inguinal hernia.

The defendant's assignment of error was to the effect that there was no competent evidence to support the award, the gist of the contention being that the director at the hearing had taken into consideration the hearsay testimony of Dr. Bailey, who had not been sworn as a witness. Dr. Brown, said the court, was sworn in as a witness and was questioned at length by the director and the attorney for the claimant concerning the contents of Dr. Bailey's report and Dr. Bailey's findings. No objection was made during the entire hearing as to the admissibility of Dr. Bailey's findings. Furthermore, continued the court, even if such testimony was hearsay and was admitted with or without objection, it would not require the setting aside of the award in favor of the claimant. Without considering this testimony, concluded the court, there was evidence to support the award of the compensation commission. Accordingly the award in favor of the claimant was affirmed.—*Hartford Accident & Indemnity Co. v. Hillhouse, 35 S. E. (2d) 603 (Ga., 1945).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Jan. 12, page 109.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various Centers, Feb. 4-6. Part III. Various Centers, March. Exec. Sec., Mr. E. S. Elwood, 225 S. Fifteenth St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY & SYPHILOGY: *Written. Group B.* April 22. *Oral. Group A and B.* June 6-8. Final date for filing application is March 1. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Philadelphia, May 9-11. Final date for filing application is March 15. San Francisco, June 27-29. Final date for filing application is April 15. Asst. Sec., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May 27. Final date for filing application is Feb. 1. Sec., Dr. P. C. Bucy, 912 S. Wood St., Chicago 12.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Jan. 18-22 and New York, April 15-19, San Francisco, June 22-25, and Chicago, Oct. 9-12. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, May 22-25. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: Chicago, May 24-25. Final date for filing application is February 1946. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N. W., Washington 6, D. C.

AMERICAN BOARD OF UROLOGY: *Oral.* Chicago, February 1946. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

15:305-350 (Aug.) 1945

Target Cells and Other Abnormalities of Red Cells in Presence of Normal Erythrocyte Count and Hemoglobin Content. J. M. Lubitz. —p. 305.

Cat Bite and Scratch Wounds with Consequent Pasteurella Infection of Man. G. H. Hansmann and M. Tully.—p. 312.

Studies on Etiologic Relation of Streptococci to Acute Epidemic Respiratory Infections. E. C. Rosenow.—p. 319.

*Measles Pneumonia, with Note on Giant Cells of Measles. G. Milles. —p. 334.

Laboratory Purification of Penicillin by Berger Method. G. Denton. —p. 339.

Drowning in Gasoline. S. Mead.—p. 342.

Work of Tissue Survey Committee. T. C. Moss.—p. 344.

Measles Pneumonia.—According to Milles, pneumonia is a common occurrence in measles and it often assumes such a characteristic form that it should be regarded as an integral part of the disease rather than a complication. Milles reports the histories of 2 adults who died late in the course of measles pneumonia. Results of necropsy on these 2 cases emphasize the anatomic specificity of measles pneumonia. The pulmonary lesion of measles results from extension of the lesion of the mucous membrane along the bronchial tree to the finer ramifications. The partial obstruction of the smaller passages by desquamated epithelium and mucus leads to conversion of the process from a catarrhal inflammation, characteristic of the larger air passages, to a purulent process. Extension into the peribronchiolar tissues and into the neighboring alveoli results in a bronchopneumonia, which may be disseminated and discrete or may become confluent. In either instance the process is specific if one may interpret the presence of even a rare Alagna giant cell as specific for measles. The roentgenogram of the disseminated process is not unlike that seen in miliary tuberculosis or rarely in atypical pneumonia. The Alagna giant cell with its bare agglomeration of eight or more nuclei is apparently specifically found in measles and was noted in the reported cases as late as the twenty-fourth day of the disease.

American J. Digestive Diseases, Fort Wayne, Ind.

12:323-354 (Oct.) 1945

*Peptic Ulcer Disappearance After Feedings of Normal Human Gastric Juice. L. M. Morrison.—p. 323.

Prevention of Induced Peptic Ulcer in Dogs by Feeding Hog Stomach Preparation. L. M. Morrison.—p. 328.

Diaphragm in Abdominal Decompression. W. Cane.—p. 331.

Action of Histaminase Preparations in Heidenhain Dogs. H. H. Rostofer and M. Laskowski.—p. 337.

Lymphosarcoma of Stomach. L. Cardon and Regina S. Greenebaum. —p. 339.

Carcinoma of Esophagus. I. Kross.—p. 344.

Unusual Clinical Syndrome Following Ingestion of Fish. H. Schneck. —p. 347.

Disappearance of Peptic Ulcer After Feeding of Normal Gastric Juice.—Morrison removed gastric juice from normal subjects and fed it to patients with peptic ulcer. Normal gastric juice was obtained from 6 volunteer subjects. The juice was rendered neutral by sodium hydroxide, filtered and rendered bacteriologically sterile by 0.3 per cent tricresol as a preservative. Ten patients with uncomplicated peptic ulcer roentgenologically demonstrable as a niche, a crater or an ulcer defect, in addition to the associated x-ray findings such as spasm, increased emptying time and local pain to palpation under fluoroscopic guidance, were placed on a well balanced diet. One half ounce of normal gastric juice diluted with 2 ounces of tap water was fed to each patient every hour during waking hours. No other medication was given. Eight of the 10 patients responded in from twenty-four to forty-eight hours to the feeding of normal gastric juice by becoming free from ulcer symptoms. No ulcer recurrences have occurred in these 8 patients during a three year follow-up period. Of the 2 patients who showed no improvement, 1 had had ulcer symptoms for nineteen years and the other intermittently for twenty-five years. The author concludes that a "protective principle" is elaborated within the gastric and duodenal mucous membranes and is secreted into the gastric juice. This protective principle may be lacking or impaired in patients with peptic ulcer, but it can be fed to them, causing the ulcers and symptoms to disappear.

American Journal of Hygiene, Baltimore

42:107-224 (Sept.) 1945

Additional Wild Caught Anopheles Punctimacula D. and K. Infected with Malaria Plasmodia in Colombia, South America. C. B. Huffaker, H. Soto and H. Rey.—p. 107.

Virulence of IG Strain of Plasmodium Relictum for Duck. F. Wolfson. —p. 111.

Mouse Adapted Lansing Strain of Poliomyelitis Virus: IV. Neutralizing Antibodies in Serum of Healthy Children. T. B. Turner, L. E. Young and Elizabeth S. Maxwell.—p. 119.

Studies on Schistosome Dermatitis: IX. Life Cycles of Three Dermatitis Producing Schistosomes from Birds and Discussion of Subfamily Bilharziellinae (Trematoda: Schistosomatidae). D. B. McMullen and P. C. Beaver.—p. 128.

Effect of Preservation by Freezing on Virulence of Plasmodium for Ducks. F. Wolfson.—p. 155.

Complement Fixation in Malaria and Syphilis. Frances Babin and Anna D. Dulaney.—p. 167.

Terminal Hypoglycemia in Ducks with Malaria. H. N. Marvin and R. H. Rigdon.—p. 174.

Outbreak of Diphtheria in Baltimore in 1944. C. H. Eller and M. Frobisher Jr.—p. 179.

Plasmodium Lophurae Infection of Chick Embryo. R. H. Rigdon. —p. 189.

Studies on Tsutsugamushi Disease (Scrub Typhus, Mite Borne Typhus) in New Guinea and Adjacent Islands: Tsutsugamushi Disease with High Endemicity on Small South Sea Island. C. B. Philip and G. M. Kohls.—p. 195.

*Effect of Fatigue, Chilling and Mechanical Trauma on Resistance to Experimental Poliomyelitis. S. O. Levinson, A. Milzer and P. Lewin. —p. 204.

*Epidemiology of Acute Respiratory Infections Conditioned by Sulfonamides: VI. Epidemicity of Subclinical Pneumococcal Infections. M. Siegel and Helen V. Karr.—p. 214.

Effect of Fatigue, Chilling and Trauma on Resistance to Poliomyelitis.—Levinson and his associates found that monkeys subjected to exhausting exercise or to chilling during the incubation period of experimental poliomyelitis developed a higher incidence and more severe paralysis than controls. Monkeys subjected to trauma of one or more limbs during the incubation period of experimental poliomyelitis showed no correlation with the location of the paralysis, and the severity and extent of paralysis did not differ from the controls. The incidence and severity of paralysis was significantly greater in monkeys inoculated with the virus during the summer months.

Influence of Sulfonamides on Epidemicity of Subclinical Pneumococcic Infections.—Siegel and Karr studied over a period of eighteen months the nasopharyngeal pneumococcic flora of 60 normal children, of whom half were treated with sulfadiazine for fifteen consecutive weeks and half were untreated. Fluctuations in the frequency of different predominant pneumococcus types were observed which were unaccompanied by recognizable symptoms and resembled a succession of subclinical epidemics affecting from 53 to 97 per cent of the persons exposed. Chemotherapy modified the normal frequency trend of susceptible strains and initiated generalized carrier epidemics of resistant strains. Therapy affected the prevailing ratio of drug susceptible pneumococci to drug resistant strains, which eventually readjusted itself after treatment. The authors conclude that the epidemicity of nasopharyngeal pneumococcic infections is inherent in strains of different degrees of virulence and can be profoundly altered by selective chemotherapy.

American Journal of Ophthalmology, Cincinnati

28:1073-1192 (Oct.) 1945

Acquired Blepharoptosis (Symptomatic Ptosis). E. B. Spaeth.—p. 1073.

Ophthalmology in Paris During War. P. Prelat.—p. 1088.

Traumatic Ocular Injuries in Soldiers: Preliminary Study. B. Rones and Helenor Campbell Wilder.—p. 1112.

Changes at Macula Due to Solar Radiation. C. McCulloch.—p. 1115.

Causes of Failure in Treatment of Squint. F. D. Costenbader.—p. 1123.

American Review of Soviet Medicine, New York

3:5-96 (Oct.) 1945

Anaerobic Infection of Brain. N. I. Grashchenkov.—p. 5.
Role of Vitamins in Pathogenesis and Treatment of Skin Diseases. L. N. Mashkilleison, E. B. Benyamovich, E. D. Krichevskaya and L. V. Shatamova.—p. 19.
Observations on Pathogenesis of Hypertension. N. N. Gorev and A. I. Smirnova-Zamkova.—p. 28.
Cyclodiathermy in Secondary Glaucoma. M. I. Auerbach.—p. 35.
Permeability of Hematoencephalic Barrier in Massive Arsenotherapy. E. I. Krichevskaya and D. I. Lass.—p. 38.
*Immunization of Diphtheria Carriers. M. Roshkovskaya and G. Shumakova.—p. 41.
Agonal States and Clinical Death: Problems in Revival of Organisms. V. A. Negovski.—p. 45.

Immunization of Diphtheria Carriers.—Roshkovskaya and Shumakova studied the problem of immunization of carriers in a large group of school children who were exposed to 15 cases of diphtheria. Immunization and bacteriologic studies were preceded by Schick tests. The follow-up lasted six months. The Schick test was positive in 143 of 495 children examined. In the course of six months the positive Schick reactors were examined three times. The first examination was carried out prior to immunization, the second examination one month and the third examination four months after the last vaccination. The proportion of positive cultures remained almost unchanged four months after immunization (23.2 per cent versus 24.7 per cent) but the carrying of virulent bacilli greatly changed. Thus, in the examination prior to immunization 16.3 per cent of the total cultures were of the virulent type in these carriers. One month after immunization there were 4.5 per cent and after four months only 2.8 per cent of the total number of cases. Avirulent bacilli increased correspondingly from 8.4 per cent (first examination) to 20.4 per cent (third examination). Whether the virulent bacilli are transformed into avirulent ones or whether reinfection with avirulent forms occurs remains a question. A comparison was made of diphtheria carriers in Schick positive and Schick negative children. Of the 143 children with positive Schick reactions 25.2 per cent, and of 352 Schick negative children 12.8 per cent were carriers of virulent bacilli. The greatest incidence of virulent carriers was found in children with a 1 plus Schick reaction; none were found in highly susceptible (Schick 3 plus) children.

Annals of Internal Medicine, Lancaster, Pa.

23:491-710 (Oct.) 1945

*Treatment of Subacute Bacterial Endocarditis with Penicillin: Report of Cases Treated Without Anticoagulant Agents. J. R. Goerner, A. J. Geiger and F. G. Blake.—p. 491.
Endemic (Murine) Typhus Fever: Clinical Observations of 180 Cases. B. M. Stuart and R. L. Pullen.—p. 520.
*Use of Thiouracil in Treatment of Patients with Hyperthyroidism. J. L. Gabrilove, M. J. Kert and L. J. Soffer.—p. 537.
*Werner's Syndrome (Progeria of Adult) and Rothmund's Syndrome: Two Types of Closely Related Heredofamilial Atrophic Dermatoses with Juvenile Cataracts and Endocrine Features; Critical Study with 5 New Cases. S. J. Thannhauser.—p. 559.
Absorption and Excretion of Iron. A. G. Little Jr. and E. G. Wakefield.—p. 627.
Ventricular Tachycardia: Report of 10 Cases, 8 of Which Were Treated with Quinidine, with Recovery in 7. S. L. Zimmerman.—p. 634.

Endocarditis Treated with Penicillin.—In 1942 Goerner and his associates employed small doses of penicillin in the treatment of 4 patients with subacute bacterial endocarditis. All of the 4 patients so treated died from six weeks to twelve months later. In 1944 the authors used larger doses. The plan was to give each patient about 240,000 units of penicillin daily for three to four weeks. A larger dose or longer course might be indicated by unusually high resistance of the infecting organism to penicillin in vitro, unsatisfactory serum penicillin levels or unfavorable clinical course. Each patient received 5,000,000 or more units of penicillin. Of 12 patients so treated 11 are alive and well, and in several instances more than a year has elapsed since termination of therapy. Heparin proved unnecessary, nor did its use alter the outcome of the single unsuccessful case. Of the three parenteral routes of administration—continuous intravenous infusion, continuous intramuscular infusion and intermittent intramuscular injections at two hour intervals—the first was the most satisfactory. The authors conclude that penicillin alone is an effective therapeutic agent in subacute bacterial endocarditis when the infecting organism is inhibitable by penicillin and the conduct of treatment is carefully determined in each individual case.

Thiouracil in Hyperthyroidism.—Gabrilove and his associates employed thiouracil in the treatment of 51 patients with hyperthyroidism and of 3 patients with nontoxic goiter. Thirty-three of these patients have been treated successfully with thiouracil for varying periods of time, the longest period of continuous therapy being ten months. Four of these patients had recurrent hyperthyroidism, the remainder having diffuse hyperplasia or toxic nodular goiter. Three patients with hyperthyroidism were successfully prepared for operation with thiouracil. Four patients with hyperthyroidism failed to respond satisfactorily to thiouracil. These patients were subsequently prepared with iodine and successfully operated on. In 11 instances thiouracil therapy was discontinued because of severe toxic reactions. Toxic reactions encountered were conjunctivitis 5 cases, edema 1 case, drug fever 4 cases, leukopenia 1 case and agranulocytosis 6 cases. Toxic reaction in some form was encountered in nearly one third of the patients. One patient with agranulocytosis died. The authors feel that because of the frequency and severity of toxic reaction, thiouracil should be used under the following circumstances: in the preparation of iodine-fast patients for operation, in older persons with hyperthyroidism who are poor operative risks, and in patients with recurrent hyperthyroidism who have been operated on twice or more.

Werner's Syndrome and Rothmund's Syndrome.—Thannhauser designates Werner's syndrome and Rothmund's syndrome as heredofamilial disorders. Many cases are reported in the literature under the misleading designation "scleroderma and cataracts." The skin changes in Werner's syndrome are not those of true scleroderma. Because of its recessive heredofamilial occurrence it is suggested that the skin changes, as the other symptoms of Werner's syndrome, are the result of a defective germ plasm not manifesting itself until the second and third decades of life. The designation of the disorder as "progeria of the adult" is suggested, since all symptoms of Werner's syndrome result in presenility. The designation of the skin changes as "heredofamilial atrophic dermatosis with skin ulcers" seems more appropriate. The skin ulcers in Werner's syndrome are not entirely trophic in origin since they appear only on exposed parts and are probably the result of pressure on the thin, atrophic and stretched skin. The success of grafting supports this opinion. The skin changes of Rothmund's syndrome are classified in the literature as poikiloderma or scleropoikiloderma. Such a classification does not accord with the heredofamilial occurrence or with the microscopic aspects. The author suggests for the skin changes in Rothmund's syndrome the term "heredofamilial atrophic dermatosis with telangiectases." Both syndromes may occur in incomplete forms. The heredity in both is recessive. The occurrence in brothers and sisters of one generation is often observed. Rothmund's syndrome starts usually in childhood, Werner's syndrome in the second and third decades. The author rejects the suggestion that Werner's and Rothmund's syndromes represent a purely ectodermal dysplasia or a primary endocrine functional disturbance. The recessive heredity of both syndromes suggests the existence of multiple germ plasm defects manifesting themselves in abiotrophic features of various organs at different periods of life.

California and Western Medicine, San Francisco

63:155-204 (Oct.) 1945

Psychogenic Factors in Obstetrics and Gynecology. R. E. Fallas.—p. 161.
Psychogenic Factors in Obstetrics. Frances Holmes.—p. 161.
Psychogenic Factors in Gynecology. G. E. Judd.—p. 164.
Neuroses of War Wives. W. B. Thompson.—p. 167.
Significance of Psychoanalysis for Gynecology. E. Simmel.—p. 169.

Canadian Journal of Public Health, Toronto

36:385-412 (Oct.) 1945

Full Time Health Service in Nova Scotia. P. S. Campbell.—p. 385.
Findings on Re-Schick Testing of Air Force Personnel. A. H. Sellers, J. H. Baillie, J. M. Cruikshank and J. C. McKibbon.—p. 390.
Salmonellosis—A Public Health Problem. J. S. Kitching.—p. 396.
Food Poisoning Due to Salmonella Newport. W. B. McClure and V. Crossley.—p. 401.

Canadian Medical Association Journal, Montreal

53:309-420 (Oct.) 1945

*Ulcer Problem: I. Etiology, with Special Reference to Interrelationship Between Vascular and Acid-Peptic Digestive Factors; II. Characterization of Satisfactory Operation Which Will Protect Against Recurrent Ulcer. O. H. Wangensteen.—p. 309.

Review of Fractures and Dislocations of Carpus. H. I. J. Kellam and P. F. McGoey.—p. 332.

Subacute Neutropenia Treated by Splenectomy. C. Auger, J. B. Jobin and L. N. Larochelle.—p. 335.

Study of Ascorbic Acid Nutrition. H. J. Leeson, Jean F. Webb, Helen P. Ferguson and Evelyn M. Semmons.—p. 341.

Tuberculosis Prevention. D. M. Gibson.—p. 349.

Disuse Atrophy of Skeletal Muscle. W. B. Ayre.—p. 353.

Observations on Certain Diseases of Tropics. J. K. McCorkle.—p. 355.

Present Status of Standardization of Digitalis and Strophanthus Products in Canada M. G. Allmark and W. M. Bachinski.—p. 361.

Treatment of Myomas in Pregnancy Which Are Undergoing Degeneration. H. W. Johnston.—p. 367.

Medical Education for 1980. W. C. Gibson.—p. 367.

Ulcer Problem.—The ease of production of perforating gastric and/or duodenal ulcer in animals by the implantation of histamine in beeswax emphasizes the importance of the acid-peptic digestive activity of the gastric juice in ulcer genesis. Fat embolism may occur following fracture of long bones and plug the end vessels of the gastric mucosa and produce erosions and/or ulcer, which in turn in the presence of active gastric secretion may result in bleeding, hematemesis and/or melena. This has been observed clinically and has been produced experimentally. The production of severe bleeding from erosions and/or ulcer attending the administration of vasospastic agents such as epinephrine or pitressin accompanied by histamine in beeswax definitely suggests the important role of the ischemia resulting from an overactive vasomotor influence in ulcer genesis when attended by active gastric secretion. Partial obstruction to the venous outflow from the stomach increases the weight of the stomach as a result of the ensuing edema of the gastric wall, especially of the submucosa. Such venous obstruction abets the ulcer diathesis. Bleeding gastric and/or duodenal erosions and/or ulcers, as well as erosions of the lower end of the esophagus, may be produced by such obstructions. The threatening bleeding of portal vein obstruction may be corrected by an operation (90 per cent resection) which reduces the capacity of the stomach to secrete. Wangensteen carried out this operation on 4 patients. Occult hemorrhage from the alimentary canal frequently has its origin in the stomach, and gastric resection is indicated in many such instances. This procedure was carried out successfully in 4 cases of profound occult anemia. The histamine in beeswax technic has proved a useful instrument in appraising the characterization of a satisfactory operation for ulcer. A three-fourths resection carried out on the Billroth II plan of operation, employing a short afferent duodenal loop in which the antral mucosa and the lesser curvature of the stomach are excised, meets the requirements of a satisfactory operation for ulcer.

Endocrinology, Springfield, Ill.

37:223-300 (Oct.) 1945

Effects of Para-Aminobenzoic Acid and Thiouracil on Thyroid Function and Resistance to Low Pressures. A. S. Gordon, E. D. Goldsmith and H. A. Charipper.—p. 223.

Effects of Thyrotropin on Metabolism of Thiouracil Treated Rats. S. B. Barker.—p. 230.

Hormonal Induction of Mating Responses in Spayed Adrenalectomized Female Rat. J. R. Ring.—p. 237.

Alterations in Autarceologic Susceptibility of Mouse to Experimental Poliomyelitis by Estrogenic Substances. G. E. Foley and W. L. Aycock.—p. 245.

Effects of Synthetic and Natural Hormone of Adrenal Cortex on Melanin Deposition in Adrenalectomized Black Rats Fed Diets Adequate and Deficient in Filtrate Factors of Vitamin B. Elaine P. Ralli and I. Graef.—p. 252

Metabolism of Steroid Hormones: Isolation of Androstenol-3(α)-17-One, Androgen, from Urine of Girl Suffering from Virilism. R. I. Dorfman and Sara Schiller.—p. 262.

Effect of Testosterone Propionate on Seminal Vesicles of Juvenile and Castrate Male Rats. H. W. Hays and D. R. Mathieson.—p. 266.

Use of Castrate Male Rats for Assay of Testosterone Propionate. D. R. Mathieson and H. W. Hays.—p. 275.

Duration of Action of Single Doses of Thyroid Hormone. A. M. Hughes.—p. 280.

Quantitative Studies on Response of Sex Characters of Differentiated Rana Clamitans Larvae to Injected Androgens and Estrogens. Beatrice Mintz, C. L. Foote and E. Witschi.—p. 286.

Epidemiol. Inform. Bull., Washington, D. C.

1:718-758 (Oct. 15) 1945

Epidemic Situation in Europe. K. Stowman.—p. 719.

Current Reports on Prevalence of Certain Diseases.—p. 733.

Infant Mortality Rates in Large Towns, 1937-1945.—p. 753.

Indiana State Medical Assn. Journal, Indianapolis

38:373-438 (Oct.) 1945

Industrial Health Activities of Government. I. G. Townsend.—p. 373.

War's Impact and Influence on Industrial Medicine. C. D. Selby and E. F. Lutz.—p. 378.

Industrial Dentistry. L. D. Heacock.—p. 381.

Progress in Industrial Dermatology. S. M. Peck.—p. 383.

Evansville Industrial X-Ray Survey. P. D. Crimm.—p. 385.

Negative Chest Findings in Mineral Wool Industry. J. L. Carpenter and L. W. Spolyar.—p. 389.

Estimation of Disability in Silicosis. I. W. G. Hannon.—p. 391.

Journal of Clinical Endocrinology, Springfield, Ill.

5:327-362 (Oct.) 1945

Effect of Testosterone Propionate on Losses Incident to Inadequate Dietary Intake. A. M. Butler, N. B. Talbot, E. A. MacLachlan and M. A. Linton.—p. 327.

Enhancement of Tuberculous Infection in Guinea Pig by Steroid Hormones. W. L. Aycock and G. E. Foley.—p. 337.

*Observations on Use of Thiobarbital as Antithyroid Agent in Treatment of Graves' Disease. E. B. Astwood.—p. 345.

Thiobarbital as Antithyroid Agent.—Astwood states that 1 of each hundred patients treated with thiouracil has developed agranulocytosis and as a consequence 1 in a thousand has died. The more common reaction from thiouracil, drug fever, while not a serious complication, usually requires that the drug be discontinued and the disease must be treated in some other way. Thiobarbital (5,5-diethyl-2-thiobarbituric acid) has been used in man. The author treated 30 patients with hyperthyroidism with thiobarbital. Total daily doses of from 0.1 to 0.4 Gm. were given. All of the manifestations of hyperthyroidism were satisfactorily controlled, but in the dosage used there was a high incidence of complications. Two deaths occurred, one from agranulocytosis and one from an acute liver disorder; 6 patients experienced a febrile reaction during the second week of treatment. It is estimated that thiobarbital is more than twice as active as thiouracil in inhibiting the function of the thyroid but that it is more toxic than thiouracil when the minimal effective dose is exceeded.

Journal of Lab. and Clinical Medicine, St. Louis

30:809-898 (Oct.) 1945

*Penicillin Levels in Serum and in Some Body Fluids During Systemic and Local Therapy. E. M. Ory, M. Meads, B. Brown, Clare Wilcox and M. Finland.—p. 809.

Rh Agglutination in Various Media, with Particular Reference to Value of Albumin. L. K. Diamond and R. L. Denton.—p. 821.

Clinical Evaluation of Copper Sulfate Method for Measuring Specific Gravities of Whole Blood and Plasma. J. Atchley, R. Bacon, G. Curran and K. David.—p. 830.

Thiamine Requirement in Alloxan Diabetes. P. T. Lowry and D. M. Hegsted.—p 839.

Bacteriostatic Properties of Sulfanilamide and Some of Its Derivatives: III. Carboxysulfathiazoles as Chemotherapeutic Agents Active in Gastrointestinal Tract. E. J. Poth and C. A. Ross.—p. 843.

Measurement of Pulmonary Arterial Pressure in Dogs. E. W. Czebrinski, J. R. Smith, S. S. Nemec and J. A. Robb.—p. 849.

Liver Function Studies on Soldiers Under Prolonged Atabrine Administration. S. P. Gottfried and A. C. Levine.—p. 853.

Serum Proteins in Portal Cirrhosis. R. S. Stacey.—p. 855.

Anoxia in Malaria: Experimental Study on Ducks. H. H. Rostorfer and R. H. Rigdon.—p. 860.

Attempted Transmission of Human Leukemia in Man. J. B. Thiersch.—p. 866.

Hematologic Values of American Soldiers Stationed in Tropics. E. Denhoff.—p. 874.

Penicillin Levels During Systemic and Local Therapy.—Ory and his associates determined concentrations of penicillin in serum and certain body fluids of adult medical patients after administration of various doses of commercial penicillin given by different routes. The data were obtained almost entirely on patients while they were under treatment. When compared with the results of tests for sensitivity of the offending organism, such information helps to indicate the results to be expected from therapy in various types of cases. During continuous intravenous or intramuscular administration fairly constant levels are

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maintained in the serum of any given patient, but the levels may vary in different patients on the same dose. During intermittent intramuscular injections a range of serum levels but not exact values can be predicted for the interval between doses on any given dosage schedule. Larger doses result in serum levels which are sustained longer and at higher values than smaller ones. During intramuscular penicillin therapy it was not possible to detect penicillin in the cerebrospinal fluid, and the levels in pleural, peritoneal and synovial fluids were erratic and usually lower than the serum levels. Diffusion from local injections of penicillin into body cavities or into the serum is quite erratic, but adequate concentrations usually remain in cerebrospinal, pleural and pericardial fluids for twenty-four hours and sometimes for forty-eight hours or longer after local injections of large amounts. After inhalation of penicillin from nebulized solutions, small amounts may be detected in the serum for short periods but rarely for as long as two hours.

Journal of Nat. Cancer Inst., Washington, D. C.

6:89-146 (Oct.) 1945

Colchicine in Experimental Chemotherapy of Cancer. R. D. Ludford. —p. 89.
Cancer Mortality and Marital Status: Analysis of Deaths Attributed to Cancer Among White Population of New York City During 1939-1941. T. J. Duffield and P. H. Jacobson.—p. 103.
Paneth Cells in Carcinomas of Small Intestine in Mouse and in Rat. Thelma B. Dunn and A. M. Kessel.—p. 113.
Effect of Nucleates on Dehydrogenase Systems. H. W. Chalkley and J. P. Greenstein.—p. 119.
Effect of Sodium Bicarbonate, Pyruvate and Diphosphopyridine Nucleotide on Dehydrogenase Activity. J. P. Greenstein and H. W. Chalkley. —p. 143.

Laryngoscope, St. Louis

55:465-526 (Sept.) 1945

Review of Available Literature on Pharynx and Pharyngeal Surgery for 1944. F. E. LeJeune.—p. 465.
M. Pterygopharyngeus and Its Relation to M. Palatopharyngeus. R. Harrington.—p. 499.
Myringitis Granulosa. J. J. Hochfilzer.—p. 509.
Thrombophlebitis of Lateral Sinus, Complicated by Pregnancy, with Complete Recovery. W. E. Sauer and Doris S. Woolsey.—p. 519.

Military Surgeon, Washington, D. C.

97:265-354 (Oct.) 1945. **Partial Index**

Clinical Conception of Blood Pressure. J. S. Sweeney.—p. 265.
*Results of Electric Shock Therapy in First 150 Cases at Veterans' Facility, Northport, N. Y. L. Lowinger and J. H. Huddleson.—p. 271.
Dairy Products in Army Ration. R. A. Isker.—p. 277.
Recurrent Nightmares: Simple Procedure for Psychotherapy. M. Moore. —p. 282.
Observations in Frontal Area Surgery. H. A. Barnes.—p. 285.
Treatment of Battle Casualties in Initial Phases of Operations at Iwo Jima Island. M. Baldwin and C. W. Reynolds.—p. 288.
Universal O vs. Typed Blood: Comparative Evaluation. J. C. Norris and J. C. Schwarting.—p. 297.
Method of Psychologic Screening of Naval Offenders. W. C. B. Johnston, H. R. Otness and G. A. W. Stouffer Jr.—p. 300.
Survey of Foot Complaints on Road Marches. B. T. Daniels and C. H. Wilson.—p. 306.
Disciplinary Problems in Military Neuropsychiatric Hospital. J. F. Casey.—p. 312.
Hypertensive Preoperative Shock Treatment in War Wounds: Preliminary Report Written in Field. W. A. Barrett.—p. 317.
Haiti Makes All Out Effort Against Yaws. M. Royere.—p. 321.
Aims of Amputation. H. H. Kessler.—p. 322.

Electric Shock Therapy.—Lowinger and Huddleson treated 150 cases at the Veterans' Facility of Northport, N. Y., utilizing Kalinowsky's technic of electric shock therapy. Kalinowsky's plan of giving an immediate second shock, if grand mal failed to appear within a few seconds, was followed during the first thirteen and a half months. Doubling of shock was then discontinued as possibly contributory to accidents. Kalinowsky stressed the adequacy of treatment for dementia precox and favored a minimum course of twenty attacks of grand mal. The fracture prophylaxis employed by the authors has been limited to sandbags in graduated sizes. Active tuberculosis, cardiac or nephritic disease, thrombophlebitis, arteriosclerosis, osteoarthritis or bone atrophies, malignant disease, organic brain disorder and epileptic predisposition were accepted as contraindications to shock therapy. An average of seventeen attacks of grand mal was induced in 150 patients, 125 of whom had dementia precox. Of these 125 patients 21 were quiescent or much improved, 19 were improved and 85 were unimproved. The percentage of improvement was largest in cases of less than six months' duration. Of those cases which had lasted more than two years, none achieved a remission or were improved. Of 4 patients with miscellaneous psychoses, 3 were quiescent or much improved and 1 was unimproved.

New York State Journal of Medicine, New York

45:2031-2126 (Oct. 1) 1945

*Orthostatic (Lordotic) Albuminuria: Including Studies on Patients in Hyperextension Body Casts. A. I. Friedman and H. S. Read. —p. 2075.
Preliminary Report of Combined Effects of Vitamin B Complex with Amino Acids. M. Jacobson.—p. 2079.
Dermatophytosis of Feet (Athlete's Foot): Its Successful Treatment with Sodium Perborate (50 per Cent) in Cold Cream or Lanolin. B. M. Becker.—p. 2081.
*Pylephlebitis Under Penicillin and Sulfadiazine Therapy. A. O. Wilensky.—p. 2082.

Orthostatic Albuminuria.—Friedman and Read report a case of the lordotic type of orthostatic albuminuria. In 5 patients with orthopedic disorders wearing hyperextension body casts, repeated urine studies were negative for albumin, and renal function remained unimpaired. Six patients with unrelated medical and surgical conditions were placed in exaggerated lordosis for periods of one to two hours. All of these patients had negative urine studies, and the appearance of albumin could not be induced. The authors conclude that although lordosis plays a role in the pathogenesis of orthostatic albuminuria in susceptible individuals it is of no influence in producing albuminuria in normal, nonsusceptible individuals.

Penicillin and Sulfadiazine in Pylephlebitis.—A middle aged man who was operated on for acute suppurative appendicitis continued to have hyperpyrexia for four weeks, which suggested a subphrenic abscess, but an exploratory aspiration of the subphrenic space was negative. At the end of six weeks the patient presented fever and chills, enlargement of the liver with jaundice and slight functional disability, enlargement of the spleen, absence of ascites, and bacteriuria. He was given large doses of penicillin and sulfadiazine and recovered. Wilensky states that the history, postoperative course and the physical and laboratory findings were characteristic of a phlebitis of the portal vein complicating suppurative appendicitis. Enlargement of the spleen and an observed episode of pain in the splenic area with renewed enlargement of the spleen and the accompanying elevation of temperature indicated that the phlebitis spread into the splenic vein and caused infarction of that organ.

Oklahoma State Medical Assn. Jour., Oklahoma City

38:361-414 (Sept.) 1945

Visual Discomfort in Eye Workers Due to Glasses: Some Causes and Cures. G. L. Berry.—p. 361.
Actinomycosis. A. D. Auspaugh.—p. 368.
Modern Medicine in Modern China: A Challenge. L. J. Moorman. —p. 371.

38:415-468 (Oct.) 1945

*Familial Aspects of Gout, Diabetes Mellitus and Obesity. W. K. Ishmael.—p. 415.
Fluorescent Lighting and Its Effect on Visual Function. J. P. Luton. —p. 418.
War Psychology and Postwar Perspective. L. J. Moorman.—p. 427.

Familial Aspects of Gout, Diabetes Mellitus and Obesity.—Ishmael investigated family histories of 50 patients with gouty arthritis who were seen at the McBride Clinic and the Oklahoma State University Hospital. He also investigated 50 patients with diabetes mellitus and 50 patients with various types of arthritis other than gout. Fifty consecutive patients with fractures served as controls. The results indicate that patients with gout, as well as those with diabetes mellitus, have a familial background of diabetes with relatively the same incidence. Of 7,768 patients admitted to an army air force station hospital 6 had gouty arthritis, and 5 of these had diabetes mellitus in the immediate family. All listed obesity as a familial characteristic. There exists a faulty metabolism of fats in both diseases. Ketosis is capable of precipitating complications in either disease. Factors likely to produce exacerbations are infections, surgical procedures, exhaustion, ketosis, emotional upsets and exposure. Arteriosclerosis results with high frequency. The younger the patient at the onset of either disease, the more severe is the course apt to be. Nephritis is a likely

final complication in both diseases. The patients themselves are apt to be of more than average weight at the onset. Furunculosis appears frequently as a complication and occasionally leads to the diagnosis of diabetes mellitus or gout.

Public Health Reports, Washington, D. C.

60:1265-1294 (Oct. 26) 1945

Long Range Dispersal of Anopheles Quadrimaculatus. D. E. Eyles, C. W. Sabrosky and J. C. Russell.—p. 1265.
DDT Residual House Spray: Method of Malaria Control in Rural Areas. F. L. Knowles and C. S. Smith.—p. 1274.

60:1295-1322 (Nov. 2) 1945

Increase of Rat Infestation on Vessels Coming to New York. R. Olesen. —p. 1295.
Increase of Rat Infestation on Oil Tankers. R. Olesen and J. L. Stone. —p. 1296.
Modified Rabbit Box Trap for Use in Catching Live Wild Rats for Laboratory and Field Studies. C. P. Richter and J. T. Emlen Jr. —p. 1303.
Damage to Fabric by Liquid Hydrocyanic Acid Gas in Fumigation. G. C. Sherrard.—p. 1308.

Surgery, St. Louis

18:1-528 (Oct.) 1945

Review of Patients with Intrathoracic Disease and Injury Treated on Surgical Service of United States Army General Hospital in North Africa. J. R. Paine and A. G. Plankers.—p. 401.
*Putrid Empyema Without Foul Sputum: "Surprise" Putrid Empyema. H. Neuhof and D. Stats.—p. 411.
*Pulmonary Embolism in Fractures of Hip. H. Golodner, L. J. Morse and A. Angrist.—p. 418.
*Treatment of Progressive Bacterial Synergistic Gangrene with Penicillin. F. L. Meleney, S. T. Friedman and H. D. Harvey.—p. 423.
Ileostomy and Colectomy in Chronic Ulcerative Colitis. C. Dennis. —p. 435.
Extrusion of Gastric Mucosa Through Pylorus: Report on 2 Patients Treated by Partial Gastrectomy. M. Norgore and I. J. D. Shuler. —p. 452.
Intussusception in Adults. A. H. Iason.—p. 457.
Improved Method for Extraperitoneal Closure of Colostomy. T. A. Shallow, S. A. Eger and W. J. Tourish.—p. 466.
Dynamics of Biliary Drainage: Its Relation to Cholangitis and Pancreatitis from Stricture of Ampulla of Vater. J. M. McGowan. —p. 470.
Spontaneous Rupture of Lower Colon with Evisceration of Small Intestine Through Anal Orifice: Complication of Advanced Rectal Prolapse. S. McLanahan and M. L. Johnson.—p. 478.
Three Hundred and Fifty-Two Cases of Tetanus. R. T. Vinnard. —p. 482.
Gunshot Fractures of Shaft of Humerus. W. T. Fitts Jr., C. K. Kirby and E. A. Brav.—p. 493.
Radiographic Diagnosis of Hernia into Lesser Peritoneal Sac Through Foramen of Winslow: Report of Case. M. S. Hollenberg.—p. 498.
Extradural Anesthesia. H. Rego Lins.—p. 502.
Semielastic Cotton Gauze Bandage Fabric. C. F. Goldthwait, J. H. Kettering and M. Moore Jr.—p. 507.
Cod Liver Oil Ointment in Surgery: Topical Application. D. C. Daughtry.—p. 510.
Care of Injured External Ear. G. V. Webster.—p. 515.
Hyperthyroidism With Progressive Exophthalmos and Without Tachycardia: Report of Case. G. O. Chapman and M. Rognoni.—p. 522.
Loss of Scrotal Integument: Simple Method of Repair. F. S. Wetherell. —p. 525.

Putrid Empyema Without Foul Sputum.—Putrid empyema without a foul sputum is not rare. Neuhof and Stats encountered a considerable number of such cases. Diagnosis of putrid empyema in the absence of foul sputum or other evidence of a pulmonary abscess is difficult. The lesion should be suspected and efforts at diagnosis persisted in when certain clinical manifestations are present. Prolonged delay in diagnosis may be fatal. The variable clinical manifestations consist primarily of persistent chest pain, slight cough and expectoration, and an illness which is severe at least in the initial stage. Cough may be absent and the course chronic. Discovery of foul pus by aspiration of the pleura is the sole method of establishing the diagnosis. This disclosure will often be a surprise. Wide drainage of the main lesion and its ramifications will effect a cure unless the diagnosis has been delayed too long. A putrid pulmonary abscess is the precursor of "a surprise" putrid empyema.

Pulmonary Embolism in Fractures of Hip.—Golodner and his associates report 86 fatalities among 304 patients with fracture of the hip. Necropsies on 25 revealed that 9 cases were due to pulmonary embolism, 8 to bronchopneumonia, 3 to arteriosclerotic heart disease, 1 to a hemorrhage from a duodenal ulcer, 1 to sepsis from a wound infection, 1 to sepsis from a severe purulent prostatitis, 1 to pyelonephritis and 1 to voluntary starvation in a demented woman. Pulmonary complications were detected in more than two thirds of the necropsies, and over half of these were pulmonary emboli. Fatal pulmonary embolism from venous thrombosis in the veins of the lower extremities is the most frequent cause of death in cases of fracture of the hip. Venous thrombosis and embolism are less frequent in patients who are made ambulant early. Prophylactic bilateral superficial femoral vein ligation combined with lumbar sympathetic block is suggested as ideal for the prevention of pulmonary embolism in fractures of the hip, especially for patients who cannot be made ambulant early.

Penicillin in Progressive Bacterial Synergistic Gangrene.—According to Meleney and his co-workers, progressive bacterial synergistic gangrene is now accepted as a clinical entity. Meleney in 1926 found that the essential bacterial agent was a microaerophilic nonhemolytic streptococcus which was present in pure culture in the advancing periphery of the lesion in 1 of the cases which Brewer and he reported. This organism was associated with a hemolytic Staphylococcus aureus in the gangrenous margin. The combination of the streptococcus and the staphylococcus was shown to produce in animals a gangrenous lesion simulating the process in human beings. This lesion could be obtained only when the organisms were combined, thus demonstrating their synergistic action. The lesion usually begins around tension sutures placed in a wound of the abdominal wall or chest which has been made for the purpose of draining either an intraperitoneal or an intrapleural abscess. The skin around the tension suture becomes red, swollen and tender and takes on a dusky appearance resembling a carbuncle with a slowly developing necrosis of the skin. This occurs from ten to twenty days after the wound has been made. Removal of the tension sutures at that time does not control the infection, which spreads and gradually produces an ulcer. Surgeons have attempted to trim away the dead tissue but, without a radical removal well beyond the zone of erythema, recurrence follows. The sulfonamides have not been effective in controlling this condition, but penicillin not only prevents a recurrence after the excision but may obviate the necessity for excision by halting the progress of the lesion and permitting a spontaneous separation of the slough. This has been demonstrated in 2 patients. In a third patient with multiple lesions, penicillin cut down the exudate and probably had some antibacterial action on certain of the bacterial species, but the presence of gram negative rods prevented its control of the infection. Surgical removal of a great part of the diseased tissue was tolerated and the postoperative course was satisfactory up to the time of the pulmonary embolus. The authors do not feel that failure in this case detracts from the value of penicillin in this disease but emphasizes the necessity of a complete bacteriologic analysis.

West Virginia Medical Journal, Charleston

41:249-272 (Oct.) 1945

Noncombat Head Injuries at an Advanced Base. E. L. Gage and H. B. Gotten.—p. 249.
Gallbladder Surgery (A Six Year Review). R. J. Wilkinson and F. C. Tung.—p. 257.
Urinary Suppression Due to Sulfathiazole. W. M. Warman.—p. 261.

41:273-300 (Nov.) 1945

Some Practical Concepts of Poliomyelitis. T. G. Folsom.—p. 273.
Orthopedic Management of Poliomyelitis. J. L. Hutchison.—p. 277.
*Intrapapillary Renal Calculi. R. U. Whipple.—p. 283.
Our Wartime Children. J. I. Klein.—p. 286.

Intrapapillary Renal Calculi.—Whipple removed calculi from the lower right ureter of a woman aged 21. The postoperative course was uneventful. On retrograde study a large (1.5 cm.) calculus was seen in the pelvis and numerous small calculi in the region of the lower major calix. A retrograde aerogram visualized the large pelvic calculus clearly. Nephrectomy was carried out. The lesion was identified as acute pyelonephritis and chronic papillary fibrosis with retention calculi. Bisection of the organ revealed that the lower major calix contained a papilla studded with many small calculi. As the gross contour of the papilla was well preserved, the specimen suggested the possibility of intratubular or intertubular calculus formation in contradistinction to the ultimate result of calculus formation through a gradual process of erosion and penetration from the caliceal surface.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:415-450 (Sept. 29) 1945

Further Reduction in Hospital Infection of Wounds. V. Logue and W. McKissock.—p. 415.
Syndrome Resembling Addison's Disease, with Severe Anemia, Steatorrhea and Melanuria. S. Locket.—p. 417.
Three Cases of Closed Intra-Abdominal Injury. H. N. G. Hudson.—p. 419.
*Risks of Gastroscopy with Flexible Gastroscope. C. M. Fletcher and F. A. Jones.—p. 421.
Treatment of Denuded External Table of Skull. P. Clarkson and J. Schorstein.—p. 422.
Perspex in Orthopedics. J. T. Scales and W. Herschell.—p. 423.
Use of Cautery in Plastic Operations on Eyelids. D. Simpson.—p. 424.

Risks Involved in Use of Flexible Gastroscope.—Fletcher and Jones had 2 fatalities attributable to gastroscopy and 4 cases with pain and fever following gastroscopy. In the first case gastroscopy was probably contraindicated, since the tissues might have been expected to be in a fragile state as a result of recent scurvy. It is possible that the tear was the result of stretching the esophagus by the rigid part of the instrument, since the patient had a slight kyphosis. In the second case extra pressure was exerted when the tip of the instrument was lying in the hypopharynx. When the patient swallows, the instrument should always slip on easily into the esophagus, and it is clearly dangerous to apply pressure if it does not do so. In addition to these 2 fatal cases and the 4 in which severe retrosternal pain and fever followed gastroscopy, the authors have heard of 5 other fatal and 2 nonfatal cases of hypopharyngeal perforation of the esophagus by the flexible gastroscope during the past two years. They stress that inexperienced gastroscopists should appreciate that caution is necessary in the passage of the flexible gastroscope.

Lancet, London

2:357-388 (Sept. 22) 1945

Impetigo Contagiosa in the Army Treated with Microcrystalline Sulfathiazole. R. M. B. MacKenna and E. S. Cooper-Willis.—p. 357.
*"Dead Hand" in Users of Vibrating Tools. E. D. Telford, M. B. McCann and D. H. MacCormack.—p. 359.
Should a Brachial Plexus Injury Be Explored? E. Hambly.—p. 360.
*Tissue Changes Induced by Clostridium Welchi Type A Filtrates. A. H. T. Robb-Smith.—p. 362.
Casualties Following Exposure to Zinc Chloride Smoke. E. H. Evans.—p. 368.
Acute Pulmonary Mycosis: Report of Case. Elizabeth Delikat, with note by S. C. Dyke.—p. 370.

2:389-420 (Sept. 29) 1945

Lumbar Puncture in Treatment of Penetrating Wounds of Brain. J. E. A. O'Connell.—p. 389.
Tsutsugamushi Fever on India-Burma Border. R. N. Tattersall.—p. 392.
Penicillin in Experimental Psittacosis of Mice. S. P. Bedson and H. B. May.—p. 394.
Aspiration Liver Biopsy: Technic and Diagnostic Application. Sheila Sherlock.—p. 397.
Retropulsed Intervertebral Disk Producing Froin's Syndrome: Report of Case. R. R. Hughes.—p. 401.
Interdigital Ringworm Treated with Solution of Sulfurated Lime. T. James.—p. 401.

"Dead Hand" in Users of Vibrating Tools.—Men in engineering works sometimes use a high speed electrically driven tool with 2,900 revolutions per minute. The worker steadies the tool with the right hand, but the heavy part of the work in guiding and holding the tool is done by the left hand, which is the first and usually the only hand to be affected by vascular disturbances. The number of workers who have reported vascular disturbances in the hands is 75 out of 300 who use this high speed tool. Telford and his associates have made a detailed study of 34 of these patients. At the onset a sudden blanching and deadness of one or more fingers occurs. After a variable interval the white stage gives way to a deep leaden cyanosis. Later the cyanotic area becomes mottled with salmon colored patches, which gradually increase and coalesce, leaving the fingers for a time redder than normal. The length of an attack may vary from a few minutes to several hours. If the patient dips his hands in tepid water or brings his body into warmer surroundings, the duration of the attack is considerably reduced. The chief trouble is the loss of sensation and uselessness of the hand during an attack, which causes serious disability. The condition is likely to persist after the man has given up the work. There was no evidence that excessive smoking caused a predisposition to the disease. X-ray examination of the hands of 21 patients did not reveal calcinosis, ulcers of the pulp or acrosclerosis. The rate of revolution and the hardness of the metal are important factors. With soft or heated metal—e. g. hot rivets—and with a speed under 2,000 revolutions per minute the risk is probably insignificant. The use of gloves or rubber pads is not satisfactory because they interfere with accurate control of the tool. An attempt has been made to damp out the vibrations by sheathing the tool in a sleeve of gas mask tubing. This method seems to have possibilities. The working of shorter hours has been suggested, but the result of this probably would be merely to postpone the onset of the disease. It is suggested that workers should not be employed on this type of work for more than nine months. The medical treatment of the condition is unsatisfactory. The most useful advice is to avoid cold to body and hands alike. This is not easy for most workers and is impossible for those in outdoor occupations.

Tissue Changes Induced by Clostridium Welchi Filtrates.—Robb-Smith uses the term gas gangrene in the sense of a clostridial myositis associated with severe constitutional symptoms. There is a preservation of myofibrils but disruption of the sarcolemma and fragmentation of the muscle fibers. The fibers are separated by an edema of the endomysial connective tissue, the reticulin membrane of the muscle fiber is separated from the sarcolemma, and there is partial to complete destruction of reticulin fibrils and collagen fibers, but the elastic fibers are unaffected. There is nuclear karyolysis and the appearance of extracellular fatty droplets, while fat cells show a breakdown to fatty acid crystals. There is no vascular hyperemia, little fibrin formation and no neutrophil cellular reaction; leukocytes in the vicinity of a lesion undergo karyolysis and cytolysis. Comparing these lesions with the changes occurring in human muscle in vitro from the action of Clostridium welchi type A filtrate the author says that they are morphologically identical save for the absence of edema or gas formation. An attempt has been made to analyze these changes in terms of the action of the enzymes known or suspected to be present in the filtrate, and it appears that the alterations are due to effects on cell membranes, cell nuclei, collagen and reticulin, and mucoproteins, and that the myofibril is unaffected. The lack of cellular reaction is not due primarily to the ischemia but to the cytolytic action of the filtrate, and since these changes can be inhibited by antitoxin it is suggested that local injection of antitoxin might be used where it has proved impossible to perform an adequate surgical excision of the affected tissue.

2:421-452 (Oct. 6) 1945

Chronic Fatigue. A. Abrahams.—p. 421.
*Damaged Intervertebral Disk: Early Diagnosis and Treatment. E. J. Crisp.—p. 422.
*Protrusion of Intervertebral Disk. B. H. Burns and R. H. Young.—p. 424.
Lumbago: Mechanism of Dural Pain. J. Cyriax.—p. 427.
Acute Phlegmonous Gastritis. M. Paul.—p. 429.
Leukemoid Blood Reaction: Simulating Acute Aleukemic Leukemia in Case of Phlegmonous Gastritis. C. J. C. Britton and P. T. J. C. P. Warner.—p. 430.
Postoperative Chest Complications: Controlled Study in Hernia and Meniscectomy Operations. F. R. Gusterson.—p. 431.
Congenital Syphilis in Infant Treated with Penicillin. A. Comfort.—p. 432.

Damaged Intervertebral Disk.—Crisp states that clinically cases of damaged intervertebral disk are distinguished by extreme and persistent spasm of the lumbar portion of the erector spinae muscle and hamstring spasm of less severity. When the patient stands erect, little abnormal is noted beyond a slight increase in the lumbar curve, but on bending forward to touch the toes lumbar spasm becomes obvious. This is sufficient to prevent forward flexion in the joints of the lumbar spine, for there is movement only at the hip joints and the upper dorsal region. The patient will complain of aching lumbar pain, which is aggravated by movement and coughing and often radiates into the groin. There is tenderness to deep pressure over the sacroiliac joint and the interspinous ligament of the affected segment. The sacroiliac tenderness often develops first; this may explain diagnostic errors. The author treated

these cases by complete rest, either in bed or in a plaster jacket. Results in the cases so treated have been satisfactory. The patients have lost their lumbar pain, they have not developed sciatica and they have been discharged from the hospital in six to eight weeks with some residual, but permanent, stiffness of the back. Cases which escape diagnosis until after the onset of sciatic pain may be divided into two groups, depending on whether the annulus fibrosus is partially or completely ruptured. The former group may be recognized by the fixed lumbar lordosis, the latter by the fixed lumbar kyphosis. Both groups usually respond well to immobilization in a spinal jacket.

Protrusion of Intervertebral Disks.—Burns and Young analyze the records of 604 patients with low back pain on sciatica. The type of injury or work associated with the majority of these cases has been heavy lifting and falls on the buttocks, which include heavy landings in an airplane and tank driving over uneven country. The most constant characteristic of a disk protrusion is restriction of movement in the anteroposterior plane while lateral movement is free. With increased experience the authors diagnose disk lesions more often. They find it necessary to operate on only about 2 of every 5 patients diagnosed as having a disk lesion. When the symptoms are slight they recommend wearing a belt or corset to restrict the movement of the lumbar spine. If the patient is seen in a first attack he is put to bed. In about half the cases the attack will subside. If after three weeks there has been no improvement, operation is recommended. To persist with rest and immobilization in a plaster bed for many weeks often failed to give relief and was a less acceptable procedure than operation. The authors do not favor the plaster jacket because it is much less comfortable and no more effective than a corset. When operation has been decided on, accurate localization of the lesion is desirable, but unfortunately it is not possible because x-ray films, either plain or with contrast mediums, and neurologic signs are of little help. The great majority of protrusions come from the disks between the fourth and fifth lumbar vertebrae or the fifth lumbar and first sacral. The authors use a free exposure because it gives easier access than the small interligamentous approach or a hemilaminectomy. In 177 laminectomies performed for suspected lesions of the disk, protrusions were found in 141. In 19 of the others intraspinal abnormalities were found. Of the 141 with proved disk lesions 131 were immediately relieved and have remained free from symptoms to date.

Medical Journal of Australia, Sydney

2:197-228 (Aug. 18) 1945

If Embley Were to Return. G. Kaye.—p. 197.
Immersion Blast Injuries of Abdomen. C. Keating.—p. 207.
*Blast Injury of Brain. L. Rogers.—p. 209.
Injuries to Ear Due to Blast. R. H. B. Bettington.—p. 210.
Observations on "Crush Injury" Syndrome and Volkmann's Contracture Associated with Severe Brain Injury and Hyperthermia. K. R. Gollan, R. Lemberg and R. A. Money.—p. 212.

Blast Injury of Brain.—Rogers states that structural changes may be produced in the brain or cord of those in the vicinity of an explosion. He reports that a seaman aged 19, after standing close to a 4 inch gun during its discharge, noticed a sudden numbness in the left hand and arm which lasted for about ten minutes. Three weeks later began the first of a series of attacks of numbness and tingling, which, starting in the left hand, spread to the elbow, shoulder and side of the face and were accompanied by involuntary abduction and elevation of the arm, spasm of the face and loss of consciousness for a few minutes. On recovery there was some residual weakness of the left upper extremity, which gradually increased and spread to the leg, and seizures became more frequent, occurring four to six times a day. It was decided to explore the postcentral areas, and a bone flap was turned down in this region. The dura in the posterior part of the field was bulging, and when it was opened the cerebral gyri here were green, widened and elevated over an area about the size of a penny. On incision of the brain in this area a shallow but extensive cavity was entered containing old blood clot. This was removed, and the patient made an uninterrupted recovery; some residual weakness and astereognosis remained. Somewhat similar cases were reported by Mott in the last war, the lesions being discovered at necropsy. It has been suggested that the mechanism responsible for the production of the cerebral lesions is the hydraulic-like pressure transmitted to the cerebrospinal axis in its closed bony walls by sudden compression of the thoracic cage. Such compression must produce violent back pressure on the venous side of the circulation. A sudden rupture of vessel walls may conceivably be caused by the decompression which suddenly succeeds the compression wave.

Practitioner, London

155:193-256 (Oct.) 1945

Recent Advances in Treatment: Medicine. A. P. Thomson and J. Malins.—p. 193.
Cardiology W. Evans.—p. 198.
Diseases of Liver. L. J. Witts.—p. 205.
Pediatrics. A. G Watkins.—p. 212.
Dysenteric Disorders. C. C. Chesterman.—p. 217.
Venereal Diseases. L. W. Harrison.—p. 223.
Pulmonary Tuberculosis. L. E. Houghton.—p. 233.

Tubercle, London

26:133-168 (Sept.-Oct.) 1945

Tuberculosis in Greece: Shortage of 15,000 Beds. B. Papanicolaou.—p. 145.
Comments on Total Thoracoscopy. R. Laird.—p. 149.
Pathogenesis of Tuberculosis: Review of A. R. Rich's Book. W. Pagel.—p. 154.
Symptomless Tubercular Lesion. R. Grenville-Mathers and D. Pickering.—p. 161.

Bruxelles-Médical, Brussels

25:815-860 (Sept. 23) 1945. **Partial Index**

*Late Results of Penicillin Treatment in Experimental Syphilis. A. Bessemans and R. Derom.—p. 821.
Intravenous Anesthesia. C. Mayer.—p. 828.
Fanielle's Method for Treatment of Tuberculosis of the Skin. A. Alechinsky.—p. 838.

Penicillin Treatment of Experimental Syphilis.—Bessemans and Derom report the results of treatment of experimental syphilis in rabbits and mice with massive doses of penicillin. Five thousand Oxford units of penicillin was injected intramuscularly at three hour intervals into the rabbits, the total dose amounting to 320,000 units in eight days. Two hundred Oxford units was injected at the same interval and by the same route into mice, with a total dose of 12,800 units in eight days and a total dose of 18,400 units for eleven and a half days. In both groups complete and permanent sterilization from Treponema pallidum was obtained with this treatment, although it was begun two to twelve months after the onset of the disease in rabbits and three to four months after the onset of the infection in mice. Dissection of parts of the brain and of peripheral lymph nodes was performed three to six months after the completion of the penicillin treatment. These results are in contrast to the negative results obtained by Neymann and Youman with penicillin treatment of late syphilis of the central nervous system in man. It is suggested that differences in the anatomic structure and dissimilarity of the minute pathologic process in the central nervous system syphilis of man may be responsible for these contradictory results.

Presse Médicale, Paris

53:501-512 (Sept. 22) 1945. **Partial Index**

Sulfuric Oxyquinoline, a Choleretic Product. M. Loeper, J. Cottet, D. Bargeton and J. Parrod.—p. 501.
Sutures of Arteries in War Wounds. E. Curtillet, D. Note, J. Houel and V. Roigt.—p. 502.
*Treatment of Tuberculosis of Larynx with Procaine Hydrochloride Infiltration of Carotid Sinus. R. LeLourd.—p. 503.

Procaine Hydrochloride Infiltration of Carotid Sinus.—LeLourd practiced procaine hydrochloride infiltration of the carotid sinus in 16 cases of tuberculosis of the larynx with ulceration and intense pain. Good results were obtained in 15 patients with repeated injections of 20 cc. of procaine hydrochloride in 1/200 solution. The disappearance of the sinocarotid reflex (whether or not it is accompanied by Horner's syndrome) demonstrates sufficient infiltration. Pulsations transmitted to the needle demonstrate that the injection is made close to the blood vessel. Infiltration of both carotid sinuses may sometimes be required, although relief from pain is often accomplished almost immediately with unilateral infiltration. Primary ischemia may subside rapidly and be followed by secondary

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vasodilatation, which may still be manifest on the fifth day. As a rule the effect of the infiltration lasts from five to ten days and not longer than twenty days. Infiltration may be repeated for months without losing its effectiveness. In 3 of LeLourd's cases there was complete relief from pain, disappearance of the edema and cicatrization of the ulcerated area. Although the latter effect will not be obtained frequently, infiltration of the carotid sinus is an excellent method of treatment of tuberculosis of the larynx.

Cardiologia, Basel

9:121-240 (Nos. 3 & 4) 1945. **Partial Index**

*Paroxysmal Tachycardia in Young Child: Paroxysmal Tachycardia Persisting for Months and Caused by Isolated Interstitial Myocarditis of Right Auricle. A. Piotti.—p. 121.

*The Heart in Training and in Excessive Training. A. Delachaux, M. Mamie and G. Aymon.—p. 173.

Variations in Glycogen and Pyruvic Acid of Heart During Electrocardiographic Modifications Observed in Rats with B Avitaminosis: Role of Pyruvic Acid. J. Van Heerswynghels and J. Thomas. —p. 211.

Paroxysmal Tachycardia in Young Child.—Piotti describes clinical and anatomic studies on a child aged 11 months with atrioventricular paroxysmal tachycardia. The first paroxysm lasted twenty-three days. There was a free interval of three days followed by tachycardia which could not be controlled and which persisted for seven months. At the onset of the disease the electrocardiogram of a normal sinus rhythm exhibited a widened and notched P as a manifestation of myocarditis in the right auricle. After the tachycardia had persisted for seven months the P wave became normal although both auricles were greatly dilated. The ventricular complex remained normal in spite of a tremendous hypertrophy and dilatation of the left side of the heart. Microscopic examination of serial sections of the myocardium revealed an interstitial myocarditis of Fiedler's type. It was located exclusively in the right auricle in the region of the sinus bridge fibers (from the Aschoff-Tawara node to the orifice of the sinus coronarius), whereas the sinus node and the entire atrioventricular system and the remainder of the myocardium was free from inflammation and scars. The pericardium, valvular apparatus, endocardium and vessels were unimpaired. The localization of the myocarditis as demonstrated pathologically was in agreement with the electrocardiographic findings. Inflammation of the upper respiratory tract which had preceded the tachycardia was regarded as the possible etiologic factor. Since interstitial myocarditis may be a localized process, examination of serial sections of the myocardium is essential for proof of the infection. Because of the close connection between the myocardial fiber and nerve termination, a differentiation between myogenic and neurogenic origin is impossible in paroxysmal tachycardia.

The Heart in Physical Training.—Delachaux and his co-workers show that physical training produces a number of changes in the human body. In sports involving great endurance changes occur particularly in the lungs, the circulatory apparatus and the products of cellular respiration. Some of these changes protect the heart against overstrain. In the well trained subject the peripheral resistance of the circulation is diminished by neurovascular regulations, while a denser capillary network and a high intracellular hemin level create optimal conditions for metabolic exchange between blood and cells. Consequently the same amount of cardiac energy will supply more oxygen to the periphery in the trained than in the untrained organism. The heart muscle undergoes changes similar to the skeletal muscle changes. Greater vascularization, increase in cellular hemins (which carry and store oxygen) and increase in respiratory products insure protection against oxygen deficiency during exertion. The heart undergoes hypertrophy and dilatation which involves particularly the length of the heart rather than the transverse diameter. This dilatation enables the heart to deliver a large quantity of blood to the periphery without greatly accelerating its rate. Large "athlete's hearts" are rarely observed; at rest their walls are relaxed and show only mild pulsation. During exertion, however, these hearts contract normally and reduce their volume, expelling their residual blood into the circulation. This type of heart is rare; it represents a highly efficient phenomenon of adaptation to exertion and is peculiar to certain constitutional types; it has no pathologic significance. When intensive training ceases, the cardiac volume decreases gradually. After years of an athletic career, the heart of the well trained athlete may show no clinical change, except perhaps an unusual tolerance for exertion. It is the exception for maximal athletic training to cause heart damage in the initially healthy subject. Systematic examination of a number of overtrained athletes revealed only neurovegetative disturbances, which subsided when excessive training was stopped. The "forced" or overstrained heart is the result of an earlier defect aggravated by the athletic exertion. This defect may have been the result of myocarditis, coronary sclerosis, arterial hypertension, anemia or neurovegetative or endocrine factors.

Dia Médico, Buenos Aires

17:988-996 (Sept. 3) 1945. **Partial Index**

*Gas Gangrene of Gallbladder: Clinical and Roentgenographic Study. A. Pierini.—p. 988.

Gas Gangrene of Gallbladder.—A woman aged 63 with an acute abdominal condition presented a tumor-like mass palpated in the region of the gallbladder. At the operation, described by Pierini, gangrene of the gallbladder and free bile in the peritoneum were found. Fundal cholecystectomy was done, with drainage of the perforated gallbladder. Sulfanilamide was applied locally. Polyvalent antigangrenous serum and intravenous infusions of a 20 per cent sodium chloride solution were administered. The rest of the gangrenous gallbladder was removed through the operative wound ten days after the operation. Gas bacilli were recovered from the fluid of the putrescent gallbladder. The gas bacilli were identified by cultures and by inoculations of mice and guinea pigs. The bile obtained forty-five days and ninety days after the operation did not contain anaerobic bacteria. The patient recovered.

Rev. Med. de Costa Rica, San Jose

12:351-370 (March) 1945. **Partial Index**

*Dextrose Solution and Vitamin B_1 in Therapy of Vomiting in Pregnancy. A. Acosta G.—p. 370.

Therapy of Vomiting in Pregnancy.—Acosta G. reports good results in 59 of 60 women with severe vomiting of pregnancy. Treatment consisted in daily intravenous injections of 2 cc. of vitamin B_1 in 20 cc. of a 50 per cent dextrose solution. Vomiting was controlled in the majority of the cases after the second injection. Occasionally, a third injection was necessary. The author believes that vomiting of pregnancy is due to two different factors: (1) a lack of antiprotein ferments in the mother's blood with consequent intoxication of the mother with fetal proteins and (2) B_1 avitaminosis. Dextrose solution stimulates formation of antiprotein ferments in the mother's blood, whereas administration of vitamin B_1 controls the avitaminosis.

Semana Medica, Buenos Aires

52:321-346 (Aug. 30) 1945. **Partial Index**

*Cystic Hematuric Form of Poliomyelitis. F. Albert, R. J. Abuin Figueroa and M. Blanco.—p. 343.

Hematuria in Poliomyelitis.—Hematuria in poliomyelitis has been previously reported only in the preagonal stage. Albert and his collaborators observed hematuria in several patients during the 1942 epidemic. Patients with hematuria presented also paraplegia of the legs, alone or associated with paresis of the arms. The consequent atrophy of the legs was severe. The patients did not have dysuria or renal or gastrointestinal disorders. The course of the neuromuscular lesions was not influenced by the hematuria. The general condition of patients in the course of the hematuric phase was good. Hematuria as a complication of poliomyelitis occurred within the first month of the disease. The urine was normal except for the presence of blood. Some cases of hematuria were complicated by urinary retention. Catheterization in these cases was not followed by hematuria. Blood pressure was normal. In some cases hematuria reappeared after several days with normal urinary secretion. The prognosis is benign, as hematuria both primary and recurrent disappears spontaneously and without treatment. The authors believe that this form of hematuria depends on a selective localization of the poliomyelitis virus in nervous tissues which elicit a transient neurogenic reaction of the bladder, with consequent hematuria.

Book Notices

American Red Cross First Aid Textbook. Prepared by the American Red Cross for the Instruction of First Aid Classes. Revised edition. Paper. Price, 60 cents. Pp. 254, with 264 illustrations. Philadelphia: Blakiston Company, 1945.

The American Red Cross has made available a completely revised version of its first aid textbook, a work that has circulated in millions of copies. More care and expert attention have gone into the preparation of this book than have ever been accorded any similar work. As stated in the preface, the cooperation of the Committee on Surgery of the Division of Medical Sciences of the National Research Council was secured together with that of experts in some of the other medical specialties. Each of the chapters was carefully reviewed and often rewritten by a physician known for his expert knowledge of the subject. The text when completed was then turned over to the Committee on Information of the Division of Medical Sciences, the chairman of which committee gave it a final reading and again edited it. The rewritten text was then referred to the surgical experts and to the staffs of the Office of the Medical Director and of the First Aid, Water and Safety and Accident Prevention Service of the American Red Cross for further review. All of those who participated in this project are given special acknowledgment by name in the new edition. The book differs in appearance from previous editions principally in improved illustrations, better printing and better typography, especially in the use of italics and boldface for emphasis. There is a good index; the book is substantially bound with staples and a cover of water repellent, though not entirely waterproof, paper. Review questions as to what to do and what not to do at the end of the chapters are extremely useful. This book should be very valuable wherever first aid is taught and as a reference book in homes, schools and industry.

Health Instruction Yearbook 1945. Compiled by Oliver E. Byrd, Ed.D., Associate Professor of Hygiene, School of Health, Stanford University. Foreword by Walter H. Brown, M.D., Acting Dean, School of Public Health, University of California, Berkeley. Cloth. Price, $3. Pp. 344. Stanford University, Calif.: Stanford University Press; London: Oxford University Press, 1945.

This is the third yearbook by Professor Byrd. Previous editions have been reviewed in THE JOURNAL as issued. The only serious criticism is one which was made by THE JOURNAL with relation to both the 1944 and 1943 yearbooks, namely that they are badly dated. The title itself and the arrangement of the type lead to the conclusion that this is a yearbook covering 1945. Actually it is a yearbook which appears in the fall of 1945. There must have been at least four months between the completion of editorial work and the appearance of the book. Thus it is to a great extent actually a 1944 yearbook containing little material for 1945 and what little it does contain referring only to the first few months. The book contains 316 articles of varying length. Somewhat less than a page is the average length, though some run to several pages. Beginning with articles in chapter one, under the general title of Health as a Social Accomplishment, the book runs through twenty chapters ending with one on trends and probabilities. It gives a good coverage of the public health field, and the articles in general are well selected, useful, diversified and well abstracted. As is pointed out in the preface to this edition, the successive issues will, within a few years, form a useful reservoir of source material which otherwise would be widely scattered through the literature. This book is so useful that it seems too bad that the author and publishers are obdurate in maintaining their unfortunate and misleading dating. The longer they maintain it, the more difficult it will be to correct.

The Afterglow. By Frank G. Nifong. Fabrikoid. Privately Printed. Pp. 347, with 1 illustration. Columbia, Missouri: Aircraft Press, 1945.

Among the leaders of medicine in Missouri have been the several generations of the Nifong family. Dr. Frank G. Nifong tells the story of the family in this privately published volume. His relationships with medical organizations have been intimate, and he has for years been a leader in medical education and in carrying health to the people of his community. His autobiography is a true reflection of his character and his work.

Photosynthesis and Related Processes. Volume I: Chemistry of Photosynthesis, Chemosynthesis and Related Processes in Vitro and in Vivo. By Eugene I. Rabinowitch, Research Associate, Solar Energy Conversion Research Project, Massachusetts Institute of Technology, Cambridge, Massachusetts. Cloth. Price, $8.50. Pp. 599, with 63 illustrations. New York: Interscience Publishers, Inc., 1945.

The "most important of all biological processes," as the author designates photosynthesis, was last reviewed in 1926. Volume I of this present planned two volume work contains largely chemical material, together with a brief review of early important research work, and is divided into part I, on the chemistry of photosynthesis and related processes, and part II, on the structure and chemistry of the photosynthetic apparatus. Since the preceding review, twenty years ago, several new avenues of approach to the problem of photosynthesis have been developed, such as oxygen liberation by isolated chloroplasts, synthesis in bacteria, the effect in certain algae of substituting new substrates for carbon dioxide and water, the use of flashing light, feeding isotopes such as heavy hydrogen, studies in fluorescence of living plants, use of the electron microscope and numerous other new biochemical and physical methods not peculiar to this particular problem. This well written comprehensive monograph contains numerous equations, tables, charts and diagrams. At the end of each chapter a bibliography is arranged in chronological order dating back to work as early as 1776. A valuable author index to the volume lists also the contribution of each scientific worker.

Handbook of Physiology and Biochemistry: Originally "Kirkes'" and Later "Halliburton's." By R. J. S. McDowall, M.D., D.Sc., M.R.C.P., Professor of Physiology, University of London, King's College, London. Thirty-Eight Edition. Cloth. Price, $6. Pp. 898, with 305 illustrations. Philadelphia: Blakiston Company; Edinburgh: Oliver & Boyd, Ltd., 1944.

The thirty-eighth edition of any book deserves comment. The volume under review was originally (1848) the work of William S. Kirkes and later of a number of authors until 1896, when Professor Halliburton became its responsible writer. In 1928 R. J. S. McDowall assumed charge, and the current edition represents his work. This book apparently owes its long life and perennial success to the fact that it presents the basic subject matter of physiology in a simple, direct and fairly complete way. The present edition introduces considerable biochemistry and retains a good deal of gross and microscopic anatomy. It is printed on "wartime paper," but otherwise the mechanical aspects of the book are satisfactory. Interest in it will probably be limited to beginning students, because it is not well documented and it fails to present much of the more recent contributions to knowledge in physiology.

The Dice of Destiny: An Introduction to Human Heredity and Racial Variations. By David C. Rife, Ph.D., Associate Professor of Zoology, Ohio State University, Columbus, Ohio. Cloth. Price, $1.75. Pp. 163, with 23 illustrations. Columbus: Long's College Book Company, 1945.

The figurative title of this book masks a work for the public on heredity. By the dice of destiny the author means the genes which determine inheritance of both physical and mental qualities. The author discusses the blood groups, the inheritance of physical traits, twins, mental capacity, personality and similar subjects. A final chapter on the genes and democracy emphasizes the view of the author that education of the heart is essential for human security. Intellectual education and scientific achievements will give us a better world in which people will live joyfully if men are motivated by the spirit of brotherly love.

Recent Advances in Neurology and Neuropsychiatry. By W. Russell Brain, M.A., D.M., F.R.C.P., Physician to the London Hospital, London, and E. B. Strauss, M.A., D.M., F.R.C.P., Physician for Psychological Medicine, St. Bartholomew's Hospital, London. Fifth edition. Fabrikoid. Price, $5. Pp. 363, with 32 illustrations. Philadelphia: Blakiston Company, 1945.

This is one of the most practical and popular treatises on recent advances in neurology. It should be in the hands of every general practitioner, neuropsychiatrist and neurosurgeon. It presents new facts on electric shock therapy in mental diseases, a discussion of prefrontal leukotomy, peripheral nerve injuries, vascular changes after chilling, a syndrome of neuritis of the shoulder girdle, the use of penicillin and an ample discussion of electroencephalography. It is extremely up to date, is well written and is highly recommended.

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Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CLIMATE AND SINUSITIS

***To the Editor:*—A patient has chronic sinusitis and wishes to move to some point in the United States where he might obtain some relief. Would you send any available information as to favorable climates or locations.**

Martin J. Rosten, M.D., Silver Creek, N. Y.

ANSWER.—The ideal and therefore most favorable climate would be the one in which there would be the least variability between the morning and evening temperatures (not less than 68 F. nor more than 75 F.), normal relationship between temperature and humidity, and finally just sufficient velocity of the wind to impart "life" to the air, thus giving one a sense of well-being.

This ideal can rarely be realized, but there are a number of locations that might approach it. Florida, southern California or perhaps Arizona should be seriously considered. If the patient is free of allergy, he could take a vacation in one of these areas. It is of the utmost importance to remember that the patient will have to allow time to accustom himself to the new atmospheric environment before any conclusions can be drawn. If, after a sufficient time has elapsed, the patient has not improved, another climate might be tried.

The value of favorable climates does not rest on any curative power in the air per se but on the fact that the patient is away from his former environment and is not now subjected to the inclemencies of weather with sudden changes in temperature, humidity and wind velocity.

All climatologists feel that no one climate can be suitable for all persons; hence the necessity for attempting to determine whether any given location is favorable or unfavorable.

RESUSCITATION OF NEWBORN INFANTS WITH ALPHA-LOBELINE

***To the Editor:*—Alpha-lobeline has been used in the obstetric department in the Pierce County Hospital, Tacoma, Wash., for the resuscitation of infants with asphyxia neonatorum. The use of this product has become routine and the value of the drug has been accepted without any question or without any skepticism. However, my knowledge of the drug Lobelia, remembering that it belongs to the tobacco family, caused me to question the alleged efficiency of the drug as claimed by the pharmaceutical firm that markets it. We recently lost an infant born by cesarean section in a case of actively bleeding placenta previa. The child lived for about seven hours. The trachea was freed of mucus by aspiration through a catheter and oxygen inhalations were given prior to the administration of the alpha-lobeline. Some authorities state that the drug, within one-half hour or so, is followed by symptoms of depression of respiration. The information that I desire is this: Are we warranted at all in using this drug for this purpose and am I, as superintendent, warranted in forbidding its use within the hospital and if so, on what grounds?**

Burton A. Brown, M.D., Tacoma, Wash.

ANSWER.—The Council on Pharmacy and Chemistry issued a preliminary adverse report on alpha-lobeline in 1927 (THE JOURNAL, Aug. 27, 1927, p. 693) and a report of rejection in 1933 (June 17, 1933, p. 1933). The pharmacologic investigation of Norris and Weiss (*J. Pharmacol. & Exper. Therap.* **31**:43 [May] 1927) had shown that the pharmacologic properties of alpha-lobeline are essentially the same as those of the amorphous impure alkaloid or of extracts of the lobelia inflata, that the emetic, respiratory and vasomotor actions of alpha-lobeline are similar to those of nicotine and that carbon dioxide and oxygen mixture is a more efficient and safer respiratory stimulant than alpha-lobeline. These conclusions have been confirmed by further experience. Goodman and Gilman (The Pharmacological Basis of Therapeutics, New York, Macmillan Company, 1941, p. 495) state that "the early enthusiastic reports on the value of lobeline as a respiratory stimulant and analeptic have not been substantiated and the drug is too dangerous and uncertain in action to warrant its employment in preference to more effective and safe therapeutic agents." Sollmann (A Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1942, p. 441) concludes, tersely, "safe doses are not reliable and effective doses are not safe." Clinically, the stimulation is often complicated by nausea and vomiting, sometimes with severe collapse and Cheyne-Stokes respiration. Current textbooks of obstetrics also reflect a negative attitude toward its used. De Lee (Principles and Practice of Obstetrics, Philadelphia, W. B. Saunders Company, 1938, p. 920) gives a tempered approval: "Lobeline hydrochloride is a valuable addition to our remedies. It is used to inaugurate the initial respiration or stimulate flagging ones. . . . The result is sometimes dramatic, the baby gets rigid, then gives a deep gasp. Its effects last only a few minutes." Adair (Obstetrics and Gynecology, Philadelphia, Lea & Febiger, 1940) states that a series of drugs which includes alpha-lobeline "have all proved uncertain in their effects." Stauder (Williams Obstetrics, New York, Appleton-Century Company, 1940, p. 1110) writes "Alpha-lobeline has been suggested in the treatment of asphyxia neonatorum. Its effect as a respiratory stimulant is open to question." Titus (The Management of Obstetric Difficulties, St. Louis, C. V. Mosby Company, 1945, p. 894) reports that the advisability of using such drugs has been so questioned by Cole that the propriety of their use is decidedly questionable. He says their use as a stimulus to respiration is immediately followed by a corresponding or even greater depression. Beck (Obstetrical Practice, Baltimore, Williams & Wilkins Company, 1942), Davis (Gynecology and Obstetrics, Hagerstown, Md., W. F. Prior Company, 1934) and Schumann (Textbook of Obstetrics, Philadelphia, W. B. Saunders Company, 1936) do not even mention alpha-lobeline in the treatment of asphyxia.

These citations bear out the conclusion that alpha-lobeline is a potent but uncertain and always dangerous drug, without material advantage over the safer and equally or more effective measures that are now generally employed for resuscitation.

HAZARDS FROM PHENOTHIAZINE

***To the Editor:*—Does phenothiazine, used as anthelmintic in livestock, have any deleterious effects on persons who work with it a great deal? What damage may they suffer? Are the effects cumulative?**

A. I. Arneson, M.D., Morris, Minn.

ANSWER.—Photosensitization may result from the absorption of phenothiazine, and exposure to sunlight then produces a dermatitis. This has been reported in orchard workers using the insecticide in sprays. Symptoms include intense itching, irritation and reddening of the skin, sometimes with edema and secondary infection. The agent is absorbed only through the alimentary or respiratory tract, and not through the skin, and for this reason the wearing of a protective mask by exposed workers has been suggested. Also of value is the avoidance of sunlight by protective clothing or ointments.

Except for photosensitization, the hazard is slight. As a urinary tract antiseptic, nearly 100 Gm. in four months has been taken without deleterious effect by some persons, but in others a secondary anemia has been produced. This has led to the suggestion that actual systemic therapy with the drug be limited to courses in which the total dosage is less than 15 Gm. Undesirable effects could not be demonstrated on the gastrointestinal tract, circulation, kidneys or liver of man or experimental animals.

References:

Thomas, J. O.; McNaught, J. B., and DeEds, Floyd: Studies on Phenothiazine: VI. General Toxicity and Blood Changes, *J. Indust. Hyg. & Toxicol.* **20**: 419 (June) 1938.

DeEds, Floyd; Wilson, R. H., and Thomas, J. O.: Photosensitization by Phenothiazine, THE JOURNAL, May 25, 1940, p. 2095.

EMBOLISM, HYPOPROTHROMBINEMIA AND OBSTRUCTIVE JAUNDICE

***To the Editor:*—I wish to know if there are any studies of statistical significance comparing the incidence of pulmonary embolism in the postoperative course in patients with obstructive jaundice against those without jaundice. These figures should be for the period before the advent of vitamin K. Such studies might throw a clearer light on the rationale of using dicumarol for prevention of pulmonary embolus in thrombophlebitis and phlebothrombosis.**

Captain, M. C., A. U. S.

ANSWER.—The query is obviously directed toward the influence of the hypoprothrombinemia in obstructive jaundice on postoperative thromboembolism. Statistics which would indicate a lessened incidence of postoperative thrombosis in patients with obstructive jaundice as compared to a similar group of patients without jaundice are not available. Their value, however, would be questionable, since it is known that many patients with obstructive jaundice have a normal concentration of prothrombin (Quick, A. J.: Stanley-Brown, Margaret, and Bancroft, F. W.: *Am. J. M. Sc.* **190**:501 [Oct.] 1935. Rhoads, J. E.:

Surgery **5**:794 [May] 1939. Pohle, F. J., and Stewart, J. K.: *J. Clin. Investigation* **19**:365 [March] 1940). These authors and some others have indicated that the hypoprothrombinemia is not proportional either to the intensity or to the duration of the jaundice. Also since the hemorrhagic level of prothrombin is below 20 per cent of the normal, many patients with jaundice have small reductions which would not necessarily protect them from postoperative clotting. The question of the correspondent, however, opens up another problem. Does a high grade hypoprothrombinemia in man really prohibit the occurrence of clotting? Some patients with advanced cirrhosis of the liver and with ulcerative colitis exhibit a severe hypoprothrombinemia, in spite of which thrombosis developed in the calf muscles. While prothrombin is an important factor in the process of clotting, this mechanism may still operate in the presence of diminished quantities of prothrombin.

DIAGNOSIS OF ALLERGIC RHINITIS

To the Editor:—**A woman has had hay fever-like symptoms for a few years in succession about the middle of August. She is affected only at night when it gets colder outside and invariably feels better during the day, especially when it is sunny. She was tested by scratch and injection method both by a good allergist and by me and does not respond to hay fever. She has a lot of hydrangeas (snowballs) around her summer home in Peekskill, N. Y., and they are blooming now. Could the hydrangeas be the cause? Should she be tested with other pollens growing in that locality? I want to stress again the point that she feels better during the day, which would seemingly eliminate pollen as the cause of this condition. Besides having rhinitis she also has aches in the limbs and body as present usually in grip.**

M.D., New York.

ANSWER.—To diagnose this condition properly one must make a complete investigation not only of the patient but of the patient's environment. Pollen sensitivity cannot be definitely ruled out despite the inquirer's statement that "the patient does not react to hay fever." There are patients encountered occasionally who have negative skin reactions with ragweed pollen or who react only when examined with concentrated ragweed solution intradermally but whose symptoms are nevertheless due to ragweeds. In addition, other pollens and other inhalant materials present primarily during August (lamb's quarter, for example) should be considered. There is also the possibility of exposure to an excessive amount of molds during August and September because of local conditions around the patient's home. Other inhalant allergens peculiar to the vicinity of the patient's home or to the home itself may contribute to symptoms only during this season.

Regarding the question of the possibility of hydrangeas being the cause of the patient's trouble, that, while not impossible, is a very unlikely assumption. The patient would have to be within a few feet of the hydrangeas or would have to have her house or her room profusely filled with these flowers to have symptoms from them.

PENICILLIN FOR CHRONIC TONSILLITIS

To the Editor:—**Can penicillin be used in the treatment of chronic tonsillitis?**

Hyman Sherman, M.D., Brooklyn.

ANSWER.—It would be best perhaps to define what is meant by chronic tonsillitis. If by the term is meant enlarged tonsils or chronically reddened ones or tonsils with crypts containing caseous plugs, then the use of penicillin is apt to be without effect. If by chronic tonsillitis is meant one of these plus acute flare-ups characterized by sore throat, increased redness or fever, penicillin during these exacerbations may be of considerable benefit. There is not much likelihood, however, that the use of penicillin can restore a hypertrophied or a chronically infected tonsil to a normal condition or that it will favorably affect the presence of caseous plugs. In using penicillin repeatedly for conditions not apt to be improved by its use such as described, it should be borne in mind that the patient may develop a more serious condition later that may be penicillin resistant. Hence penicillin ought not to be used for trivial infections.

AIR DISINFECTION IN HOSPITALS

To the Editor:—**Are any of the methods of air sterilization recommended for general use in hospitals and nurseries?**

Martha O'Malley, M.D., Boston.

ANSWER.—Treatment of floors and bedclothes with oil emulsions to hold down infected particles of dust and lint has proved of sufficient value in military barracks and station hospitals to recommend trial in civilian hospitals. Other methods of air disinfection are still in the experimental stage. High intensity ultraviolet irradiation is fairly effective against droplet nuclei, but its use at present is limited by harmful effects on the eyes and skin. There is not good evidence that glycol aerosols accomplish much under practical conditions of room occupancy. The use of antiseptic mists is also limited by toxicity, odor or corrosiveness to metals and clothing.

IMPAIRED VISION FOLLOWING MEALS

To the Editor:—**Frequently I find that patients have impaired vision following a meal; their vision is hazy. Could this be due to an increase in blood sugar? During the past twenty-five years many of my patients with diabetes have complained of impaired vision, especially when the blood sugar is high.**

William V. Vandervoort, M.D., Battle Creek, Mich.

ANSWER.—So far as the increase in blood sugar following a meal is concerned, evidence is not readily available to substantiate the theory that impaired vision is caused thereby. According to Adler the retina rapidly utilizes sugar, and the retina "splits" much more sugar than does any other tissue. Many observers have reported alterations in the refractive power of the eye in patients with diabetes which probably vary with the sugar content of the blood. Certain observers have stated that this variation is as much as 5 diopters. It is also known that an autotoxemic amblyopia may be associated with diabetes. Some patients with visual complaints difficult to attribute to a specific cause have circulatory and toxic disturbances which probably affect their vision. There is a possibility that, after drinking tea or coffee with a meal, contraction of the retinal vessels might impair vision in certain persons with a tendency to vasospasm. Patients with impaired vision following a meal might have an allergy to certain foods.

DIABETES AND LYMPHATIC LEUKEMIA

To the Editor:—**A man aged 67 has had diabetes mellitus for twelve years, during which time he has taken insulin daily in doses up to 60 units; he has also been on a high fat, low carbohydrate diet. About six months ago a diagnosis of chronic lymphatic leukemia was made, and at the same time the amount of sugar in his urine began to drop and the required dosage of insulin was gradually diminished until at present he is taking 15 units every second or third day. At the same time he has been able to increase his carbohydrate intake. Is there any physiologic explanation?**

Carlos E. Kemper, M.D., Viborg, S. D.

ANSWER.—Is the improvement in the diabetes not due to the advent and advance of the lymphatic leukemia, which may have resulted in less intake of food and consequent reduction in weight? Such a condition is sometimes seen in tuberculosis and cancer, particularly if the latter involves the liver. Lymphatic leukemia is rare in diabetes and diabetes rare in lymphatic leukemia, as found by consultation of the literature of both diseases and by the personal interrogation of physicians concerned in their treatment.

ENLARGED SPLEEN AND MALARIA

To the Editor:—**A young man suffered an attack of acute infectious mononucleosis fifteen years ago and his spleen has remained enlarged, one and a half fingerbreadths below the margin of the ribs, ever since. He has otherwise been in excellent health with normal blood count. Should this young man for some reason or other go to some tropical country where he may acquire malaria or some other tropical disease affecting the spleen, would he be running a greater than average risk of succumbing to the infection?**

M.D., New York.

ANSWER.—Enlargement of the spleen as a result of an acute infectious mononucleosis does not alter susceptibility to malaria. If the man is contemplating travel or employment in a tropical area, the fact that there is an enlarged spleen should not influence his decision particularly as far as malaria is concerned.

INHIBITING EFFECTS OF AUTOLYZED BACTERIA ACTION OF PENICILLIN

To the Editor:—**The effect of sulfonamides is known to be eventually diminished by an inhibitor substance, para-aminobenzoic acid, liberated from autolyzed bacteria. I wonder whether anything similar might happen while using penicillin. Is there anything known about that subject?**

M.D., Bolivia.

ANSWER.—There is nothing known about the inhibiting effect of autolyzed bacteria on the action of penicillin except in the case of the colon bacillus. Extracts of Escherichia coli are capable of inactivating penicillin in vitro. There is no evidence that this phenomenon is operative in the treatment of human infections.